TRANSITION NETWORKS®



SDSFE31xx-100 RS-232-to-100Base-FX Industrial Device Server

Manual

33367 Rev A

Table of Contents

FCC warning v
CE Mark v
About this product and manual vi
Device server vi
Term/usage vi
About this manual vi
Manual structure vi
Box contents vii
Cautions and warnings viii
Cautions and warnings viii
Cautions viii
Warnings ix
Section I 1
SDSFE31xx-100 Industrial Device Server 1
In this section 1
General description 2
Overview 2
Features 2
SDSFE31xx-100 Industrial part numbers 3
Standard models 3
Physical description 4
Device server parts and functions 4
Section II 7
Installation 7
In this section 7
Mounting location 8
Installation considerations 8
Installation cautions 8
DIN rail clip and DIN rail mounting 9
Mounting the DIN rail clip 9
DIN rail and device server mounting considerations 9
Mounting the device server 10
Grounding the Device Server 11
Wiring considerations 11
Device server grounding 11
Connecting power to the Device Server 12
Redundant power 12
Terminal-block plug wiring 13
Connecting an alarm fixture 15
Alarm relay 15
Alarm relay wiring 15
Fault indications 16
Connecting fiber cables 17
Fiber cable installation 17
Connecting DB-9 cable 18
DB-9 cable configuration 18
DB-9 cable installation 18
DIP Switches 19
DIP switch position descriptions 19

Continued on next page

Section III 21
Operations 21
In this section 21
Light emitting diodes (LEDs) 22
LEDs 22
Device Server configuration 23
Introduction 23
Web access 23
Configuration software 25
Expanded software tree 25
Systems details menu options 26
System information submenu 26
Master information submenu 26
Configuration menu options 27
Serial port config submenu 27
Serial connect status submenu 30
Mgmt config menu options 31
User config submenu 31
Firmware download submenu 32
FW upgrade via HTTP 32
FW upgrade via TFTP 34
Configuration file submenu 36
Configuration file backup 36
Configuration file restore 37
SNMP configuration menu 38
SNMP communities submenu 38
IP trap manager submenu 39
System restore submenu 41
System restore 41
System reset 41
Section IV 43
Serial IP Redirector Software 43
In the section 43
Serial IP redirect software description 44
COM port usage 44
Operating environment 44
Configuration wizard 44
Networked device server 44
Getting started and software pre-installations considerations 45
Pre-installation considerations 45
What is needed? 45
Installing serial IP redirector software 46
Software installation 46
Upgrading serial IP redirector software 50
Software upgrades 50
Creating virtual COM ports 51
Control panel 51
Virtual COM port creation 52
COM Port configuration 52
If the wizard fails 55
If the wizard is successful 55

Continued on next page

Section V: 57
Troubleshooting 57
Introduction 57
In this section 57
Troubleshooting problem and corrective action table 58
Section VI: 59
Cable Specifications 59
Introduction 59
In this section 59
Copper DB-9 *(RS-232)* serial cable specifications 60
What is RS-232 *(DB-9)?* 60
DB-9 cable specifications 60
DB-9 cable pinouts 60
Fiber cable and optic specifications 61
Fiber cable characteristics 61
Fiber optic specifications 61
Section VII: 63
Contact Us, Warranty, & 63
Conformity Information 63
Introduction 63
In this section 63
Contact us 64
Technical support 64
Live Web chat 64
Web-based training 64
E-Mail 64
Address 64
Conformity declaration 65
Warranty 66
Limited lifetime warranty 66
What the warranty does not cover 66
Establishing original ownership 66
Who to contact for returns 66
How and where to send the returns 67
Customer pays non-compliant return costs 67
Non-warranty repair costs 67
Repaired non-warranty products 67
This warranty is your only remedy 67
Compliance information 68
Compliances 68
FCC Regulations 68
Canadian Regulations 68
European Regulations 68
Appendix A: 71
Technical Specification 71
SDSFES31xx-100 specifications, notices, and warnings 71
Notices 72
Warnings 72
Index 73

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FCC warning

This equipment has been tested and found to comply with the limits for class A devices, pursuant to part 15 of FCC rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation. This equipment generates, uses, and radiates radio frequency energy; therefore, if it is not installed and used in accordance with the instructions in this document, could cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference; the user will be required to correct the interference at the user's own expense.

CE Mark

CE Marking *(European Conformity)*: This is a Class A product. In a domestic environment, this product could cause radio interference; as a result, the user may be required to take adequate preventative measures.

About this product and manual

Device server

The SDSFE31XX-100 Industrial Device Server design provides a DB-9 *(RS-232)* connection over fiber cables, where the connecting device has an RS-232 interface. The Device Server enables serial devices, such as CNCs *(computer numerical controls)* and PLCs *(programmable logic controllers)* to connect instantly to an existing Fast Ethernet network. The Serial-to-Ethernet Device Server represents a robust solution for device controllers used by MIS personnel.

Term/usage

In this manual, the term "Device Server*" (first letter upper case)* refers to the SDSFE31xx-100 Industrial RS-232-to-100Base-FX Industrial Device Server; "device server" *(first letter lower case)* refers to other device servers.

About this manual

This manual provides instructions on how to install, configure, and operate the SDSFE31xx-100 Industrial RS-232-to-100Base-FX Industrial Device Server.

Manual structure

This manual has a beginning table of contents; also, at the beginning of each section there is a table of contents. As you traverse the manual, note the side headings. These side headings make it easier to find specific information. The manual sections are as follows:

Section	Description
I	Device Server general and physical descriptions, and features.
II	Installation: describes mounting and wiring the Device Server for operation.
III	Operation: LED functionality and configuration software.
IV	How to instruction on: Serial IP Redirector Software installation, software upgrades, and creating virtual COM ports.
V	Troubleshooting: in a table format, show problem causes and potential solutions.
VI	Cable Specifications: presents RS-232 serial cable and fiber cable specifications.
VII	Tells how to contact Transition Networks, product warranty and product conformity information.
Appendix A	Presents product specifications, notices, and warnings.
Index	Provides navigation information to specific content in this manual.

Continued on next page

About this product and manual, *continued*

Box contents

The box should include the following:

- One RS-232-to-100Base-FX Industrial Device Server
- DIN Rail Kit
- Fiber protective port caps
- User manual CD
- Serial IP Redirector software CD

Cautions and warnings

Cautions and warnings

Make sure that you read and understand all content identified by these two symbols:



Cautions and warnings appear here and throughout this manual where appropriate. Failure to read and understand the information identified by the "caution" and "warning" symbols could result in poor equipment performance, damage to equipment, or injury to persons.

Cautions

Cautions indicate the possibility of damage to equipment.

⚠ CAUTION

Make sure that the Device Server is mounted with proper space around it for ventilation *(heat dissipation)*. Failure to observe this caution could result in damage to the Device Server.

⚠ CAUTION

Please exercise caution when using power tools. Do not install this unit in damp or wet locations, or in close proximity to very hot surfaces. Failure to observe this caution could result in damage to the Device Server and cables.

⚠ CAUTION

Only qualified persons should install the Device Server. Failure to observe this caution could result in poor performance or damage to the Device Server.

⚠ CAUTION

Install the Device Server in an environment where the temperature range is from 0ºC to 70ºC *(32º to 158º F)*, with relative humidity of 5% to 90%, non-condensing. Failure to observe this caution could result in poor Device Server performance.

⚠ CAUTION

DO NOT install the Device Server in areas where strong electromagnetic fields (EMF) exist. Failure to observe this caution could result in poor Device Server performance and data corruption.

⚠ CAUTION

The Device Server must be mounted to a well-grounded surface. Failure to observe this caution could result in EMI problems.

Continued on next page

Cautions and warnings, *continued*

⚠ CAUTION

When connecting DC power wires to the terminal-block plug, pay close attention to the polarity markings shown near the terminal block of the Device Server. Failure to observe this caution could result in damage to the equipment.

⚠ CAUTION

This is a Class A product. In a domestic environment, this product could cause radio interference in which case the user may be required to take adequate corrective measures.

Warnings

Warnings indicate the possibility of injury to persons.

WARNING

Be sure to disconnect power before installing and wiring the Device Server. Failure to observe this warning could result in an electrical shock.

WARNING

Fiber optics: Visible and invisible laser radiation when open: DO NOT stare into the beam, or directly view the beam with optical instruments. Failure to observe this warning could result in an eye injury or blindness.

WARNING

Use of controls, adjustments or the performance of procedures other than those specified herein may result in hazardous radiation exposure.

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Section I
SDSFE31xx-100 Industrial Device Server

In this section These are the topics:

Topic	See Page
General description	2
SDSFE31xx-100 Industrial part numbers	3
Physical description	4

General description

Overview

The SDSFE31xx-100 Industrial Device Server features complete Ethernet and TCP/IP network support that allows devices in industry with RS-232 connectors, *(milling machines, measurement instruments, and robots)* to connect to LAN-based automation. Other devices typically found on campus networks such as card readers, code readers, lab equipment, medical equipment, and other similar serial devices can now instantly migrate to a TCP/IP network.

Additionally, the Device Server enables monitoring and managing up to 4,096 serial devices from a single PC, with help from the serial IP Redirector software.

Features

The SDSFE31xx-100 Industrial Device Server has the following operational features:

- Fast Ethernet fiber port, 100Mbps
- Serial port with asynchronous data rates up to 115.2 Kbps
- Relay output for power failure and link down
- ST/SC connectors for multimode or SC connector for single mode
- Extends distance of up to 2km *(1.2 miles)* multimode fiber and 80 km *(49.7 miles)* long-haul single mode fiber
- DIP switches to enable/disable alarm function
- Seven (7) LEDs for at-a-glance device status
- Suitable for industrial harsh environments
- Wide voltage range 9 – 48VDC
- Dual *(redundant)* DC power inputs

SDSFE31xx-100 Industrial part numbers

Standard models

The part numbers shown in Table 1 perform as described in this manual.

Table 1: SDSFE31xx-100 Industrial Part Numbers

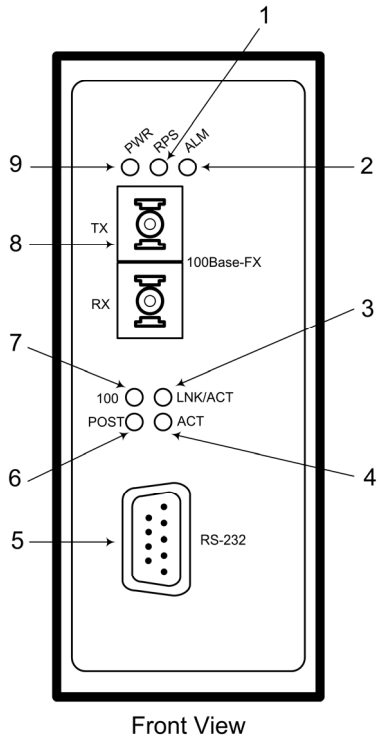
Part Number	Port 1: DB-9	Port 2: Fiber Optic 100Base-FX
SDSFE3111-100	RS-232 15 m *(50 ft)*	ST, 1300 nm multimode 2 km *(1.2 miles)*
SDSFE3113-100	RS-232 15 m *(50 ft)*	SC, 1300 nm multimode 2 km *(1.2 miles)*
SDSFE3114-100	RS-232 15 m *(50 ft)*	SC, 1310 nm single mode 20 km *(12.4 miles)*
SDSFE3115-100	RS-232 15 m *(50 ft)*	SC, 1310 nm single mode 40 km *(24.8 miles)*
SDSFE3117-100	RS-232 15 m *(50 ft)*	SC, 1550 nm single mode 80 km *(49.7 miles)*

Note: The distances for ports 1 and 2 listed in Table 1 are typical maximum distances; the physical characteristics of the network will affect the actual distances.

Physical description

Device server parts and functions

Figures 1 and 2 identify the SDSFE31xx-100 Industrial Device Server parts and functions.



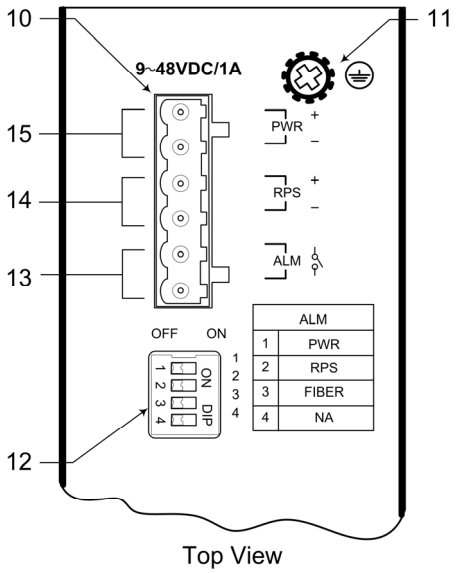
1. Redundant Power (RPS) LED
2. Alarm LED
3. Fiber Port Link/Activity
4. Serial Port Activity
5. RS-232 Serial Port
6. Power ON and Self-Test (POST) LED
7. Fiber Port 100Mbps LED
8. Fiber Port
9. Primary Power LED

Figure 1: SDSFE31xx-100 Industrial Device Server *(Front View)*

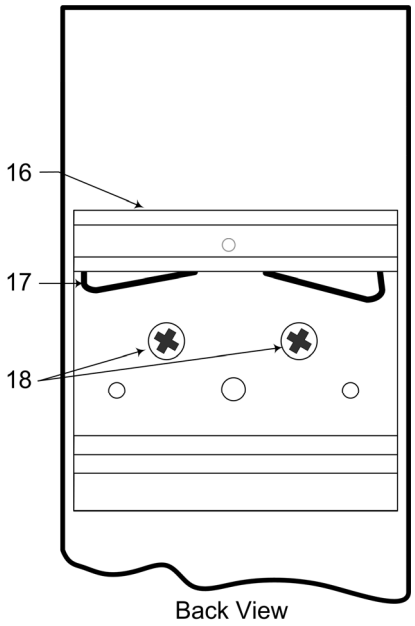
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Physical description, *continued*

Device server parts and functions *(continued)*



10. Terminal Bock
11. Grounding Screw
12. DIP Switches
13. Alarm Relay Contacts
14. Redundant Power Input
15. Primary Power Input



16. DIN Rail Bracket
17. Metal Spring
18. Screws

Figure 2: SDSFE31xx-100 Industrial Device Server ***(Top and Back Views)***

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Section II
Installation

In this section These are the topics:

Topic	See Page
Device Server mounting location	8
DIN rail clip and DIN rail mounting	9
Grounding the Device Server	11
Connecting power to the Device Server	12
Connecting an alarm fixture	15
Connecting fiber cables	17
Connecting DB-9 cable	18
DIP switches	19

Device Service mounting location

Installation considerations

The location selected to install the Device Server can greatly affect its performance. When selecting a site, consider the following:

- Install the Device Server in a fairly cool and dry place. See Technical Specifications for the acceptable temperature and humidity operating ranges.
- Install the Device Server in a location free from strong electromagnetic field generators *(such as motors)*.
- Do not expose or subject the Device Server to vibration, dust, and direct exposure to sunlight.
- Leave at least 5cm *(1.97 in)* of space at the front and rear of the unit for ventilation.
- To prevent the Device Server from sliding around affix the provided rubber pads to the bottom plate or mount the device to a DIN Rail.

Installation cautions

Observe the following cautions when installing the Device Server.

⚠ CAUTION
Only qualified persons should install the Device Server. Failure to observe this caution could result in poor performance or damage to the Device Server.

⚠ CAUTION
Install the Device Server in an operating environment where the temperature range is from 0ºC to 70ºC *(32º to 158º F)*, with relative humidity of 5% to 90%, non-condensing. Failure to observe this caution could result in poor Device Server performance.

⚠ CAUTION
DO NOT install the Device Server in areas where strong electromagnetic fields (EMF) exist. Failure to observe this caution could result in poor Device Server performance and data corruption.

DIN rail clip and DIN rail mounting

Mounting the DIN rail clip

The aluminum DIN Rail Clip should already be mounted to the back panel of the Device Server. If you need to attach the DIN Rail Clip, position the stiff-metal spring as shown in Figure 3.

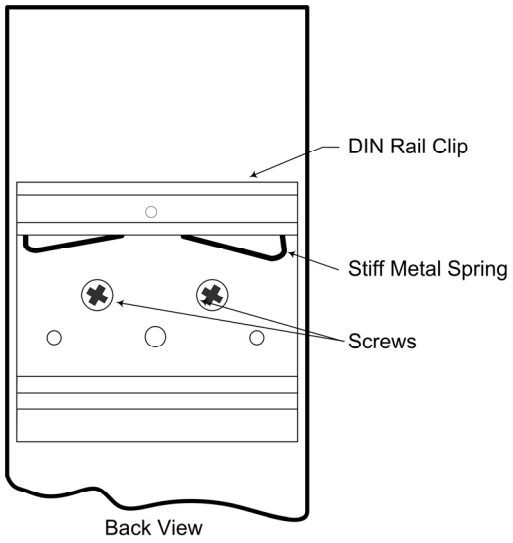


Figure 3: Mounted DIN Rail Clip

DIN rail and device server mounting considerations

Consider the following before mounting the DIN rail to a surface and attaching the Device Server:

- The surface must support at least 1,000 gm *(2.2 lbs)* for the Device Server.
- Do not place heavy objects on the Device Server.

⚠ CAUTION

Mount the Device Server with proper spacing around it for ventilation *(heat dissipation)*. Failure to observe this caution could result in damage to the Device Server.

⚠ CAUTION

Please exercise caution when using power tools. Do not install this unit in damp or wet locations, or in close proximity to very hot surfaces. Failure to observe this caution could result in damage to the Device Server and cables.

Continued on next page

DIN rail clip and DIN rail mounting, continued

Mounting the device server

To mount the Device Server to the DIN rail, see Figure 4 and do the following:

Step	Action
1.	Align and then position DIN-Rail-clip spring to the top of the DIN rail as shown in Figure 4a.
2.	Press DOWN on the Device Server and then IN to snap it into place on the DIN Rail. See Figure 4b.

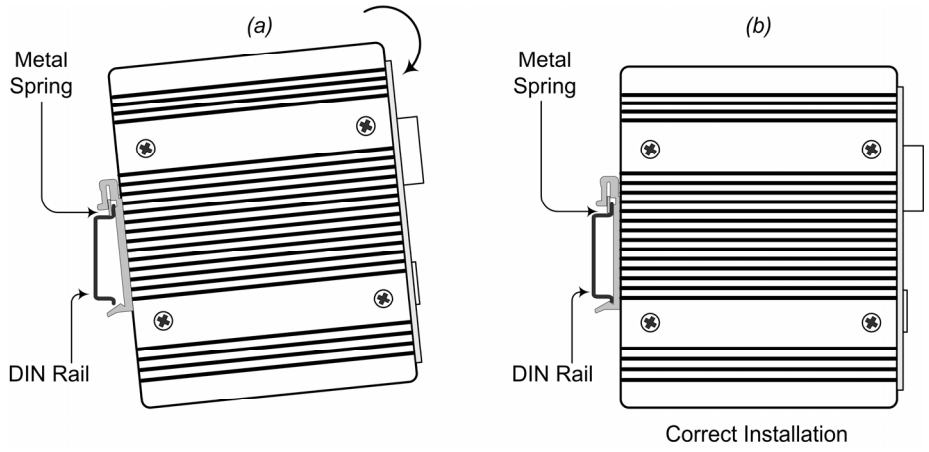


Figure 4: Device Server Mounting to DIN Rail

Grounding the Device Server

WARNING

Be sure to disconnect power before installing and wiring the Device Server. Failure to observe this warning could result in an electrical shock.

Wiring considerations

The following wiring considerations are recommended:

- Use separate paths to route wiring for power and device data cables. If power wiring and device data cables must cross make sure that the wires are perpendicular at the intersection point.
- Do not run signal or communications wiring and power wiring in the same wire conduit. To avoid interference, wires with different signal characteristics route separately.
- Use the type of signal transmitted through a wire to determine which wires should be kept separate. The rule of thumb is wiring that shares similar electrical characteristics can be bundled together.
- Keep input and output wiring separated.
- Label the wiring to all devices in the system for clarity.

CAUTION

The Device Server must be mounted to a well-grounded surface. Failure to observe this caution could result in EMI problems.

Device server grounding

The Device Server can eliminate the effects of noise due to electromagnetic interference (EMI) via proper grounding. Always run the ground connection from the ground screw to a grounding surface before connecting DC power. See Figure 5.

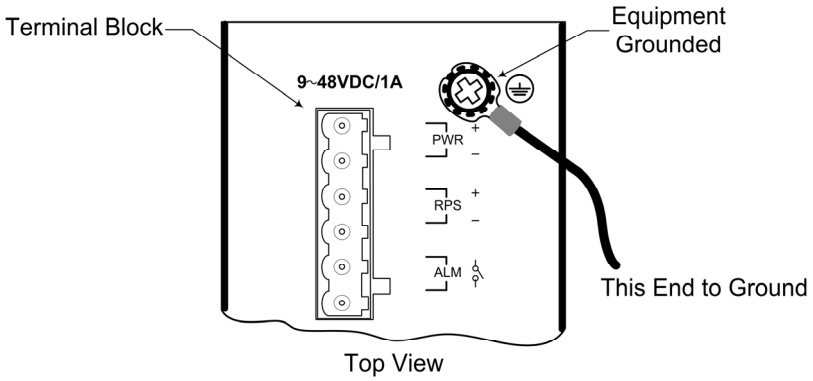


Figure 5: Device Server Grounding Screw

Connecting power to the Device Server

Redundant power

Dual *(redundant)* power inputs can be connected simultaneously to live DC power sources. See Figure 6. If one power source fails, the other live source acts as a backup, and automatically supplies the Device Server with power.

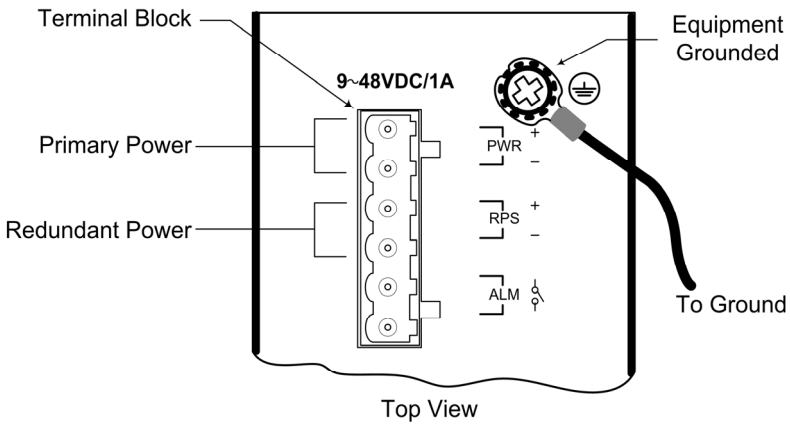


Figure 6: Redundant Power Connections

IMPORTANT

- Power is supplied through an external DC power source. Check the Technical Specification section for information about the DC power input voltage.
- The Device Server does not include a power switch; therefore, plugging a wired and active terminal-block plug into its terminal block will immediately power UP the unit.

Continued on next page

Connecting power to the Device Server, continued

⚠ CAUTION
When connecting DC power wires to the terminal-block plug, pay close attention to the polarity markings shown near the terminal block of the Device Server. Failure to observe this caution could result in damage to the device.

Terminal-block plug wiring

To wire the six-contact-terminal-block plug for redundant power, do the following:

Note: The six-contact-terminal-block plug is constructed *(keyed)* to mate with the Device Server terminal block. When wiring the plug for power, use the polarity markings next to the terminal block on top of the Device Server to ensure proper connection.

Step	Action
1.	Turn the external power source OFF.
2.	Strip the power wires as required.
3.	Insert one stripped power wire into the terminal-block plug, Observe polarity. See Figure 7.
4.	Secure the wire using a flathead screwdriver by tightening the contact screw. See Figure 7.
5.	Repeat Steps 3 and 4 until all wires are installed and secured.

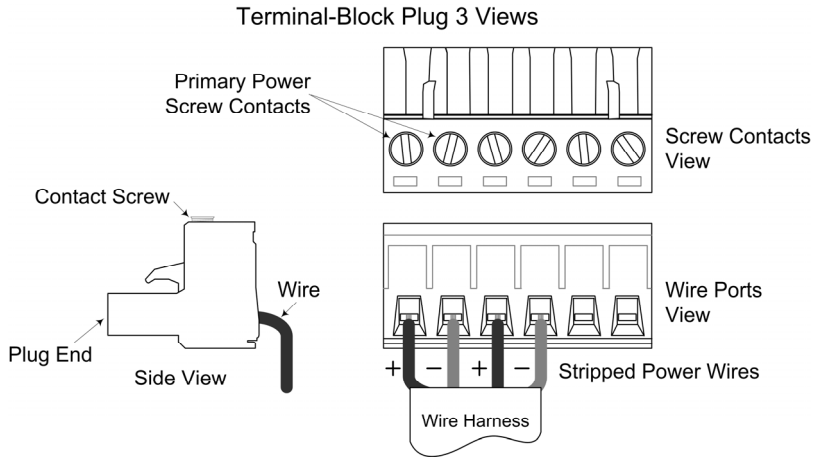


Figure 7: Six-Contact-Terminal-Block Plug *(Primary/Redundant Power Wiring)*

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Connecting power to the Device Server, continued

Terminal-block plug wiring *(continued)*

Step	Action
6.	Insert the terminal-block plug into the Device Server's terminal block, as shown in Figure 8.

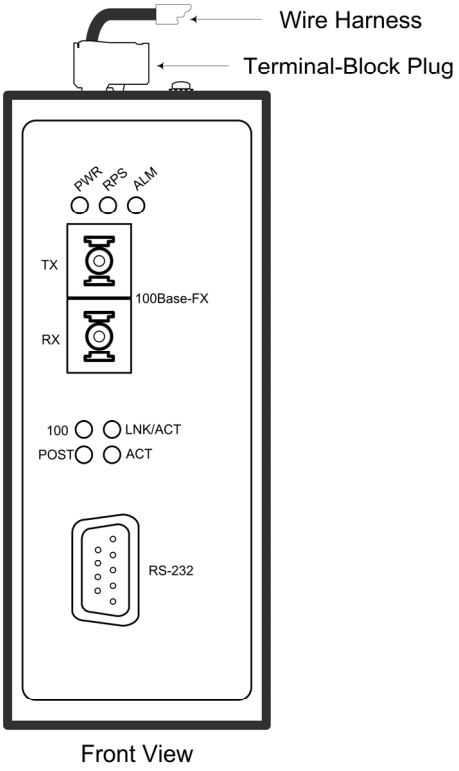


Figure 8: Wired Terminal-Block Plug Inserted Into Device Server

7.	Make sure that the DC power source is stable and clean.
8.	Turn ON the power source and the PWR LED(s) should turn ON.

Connecting an alarm fixture

Alarm relay

The Device Server has contacts for connecting an external alarm fixture. Located on the green terminal block on the top panel, the relay has normally open contacts that can be wired to form a circuit for triggering an external alarm when a fault occurs *(light or audible alarm)*. See Figure 9.

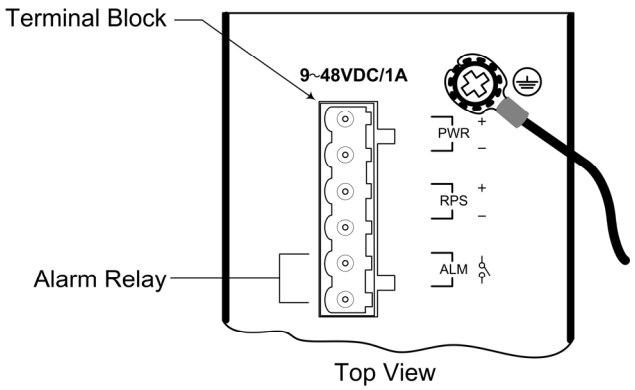


Figure 9: Alarm Relay Contacts

Alarm relay wiring

To wire an alarm to the relay contacts, do the following:

Step	Action
1.	Verify that the external power source is turned OFF.
2.	Strip the wires as required.
3.	Wire the alarm as shown in Figure 10.

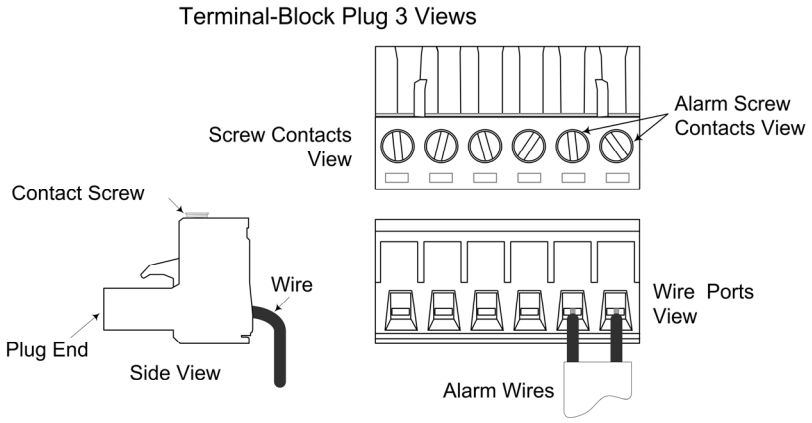


Figure 10: Alarm Relay Wiring

Continued on next page

Connecting an alarm fixture, continued

Fault indications

Wire the relay contacts to any warning light or audible alarm in the factory or control room. Then when a fault occurs, the relay contacts close, sending a signal to activate an external alarm or turn ON a light, indicating a fault. An alarm will occur under the following conditions:

- Any link failure *cable disconnected, device break down)*
- PWR/RPS power failure:
 - Power wires are disconnected, power source malfunction
 - Input power is out of this range: 9 – 48V

Connecting fiber cables

Fiber cable installation

When connecting fiber cables to the 100BASE-FX port on the Device Server, make sure the correct type is used: ST or SC.

To install the fiber cables, do the following:

Step	Action
1.	Remove and keep the rubber fiber-port-protector cover shown below. 

Note: When not connected to a fiber cable, insert the rubber protective cover into optic port to protect the optics.

2.	Check that the fiber terminators are clean. If necessary, clean the fiber connectors using locally accepted cleaning procedures.

Note: Dirty fiber connectors on fiber optic cables will impair light transmission quality through the cable and lead to degraded performance on the port.

3.	Connect the fiber cable as shown in Figure 11.

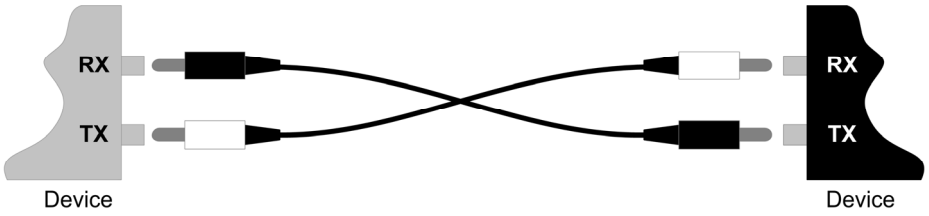


Figure 11: Fiber Cable Connections

4.	Check the corresponding fiber port LED on the Device Server to verify the connection—Link/Act LED should be lit.

Warning

- Visible and invisible laser radiation when open: DO NOT stare into the beam, or directly view the beam with optical instruments. Failure to observe this warning could result in an eye injury or blindness.
- Use of controls, adjustments or the performance of procedures other than those specified herein may result in hazardous radiation exposure.

Connecting DB-9 cable

DB-9 cable configuration

Depending on the equipment type, data terminal equipment (DTE) or data communication equipment (DCE), use a null modem *(crossover)* or straight-through cable. See Figure 13.

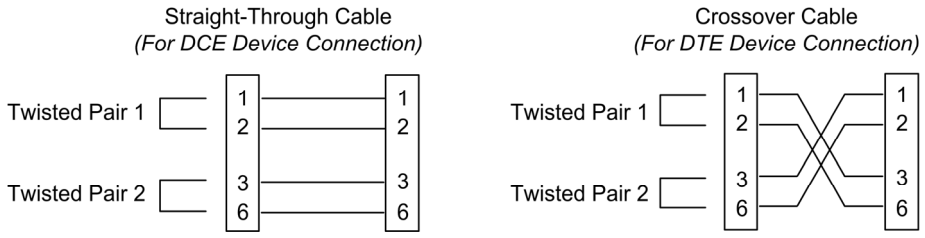


Figure 12: Straight Through and Crossover Cables

Note: The Device Server is configured as a DTE Device. See Cable Specification Section for DB-9 cable pinouts.

DB-9 cable installation

To connect the DB-9 *(RS-232)* cable to the Device Server and other equipment, do the following:

Step	Action
1.	Insert one end of the RS-232 cable into the Device Server.
2.	Tighten the screws to secure the cable.
3.	Repeat Steps 1 and 2 for the other equipment. See Figure 12.
4.	Test the connection by sending a link pulse to the Device Server and the ACT LED will flash, indicating a good connection.

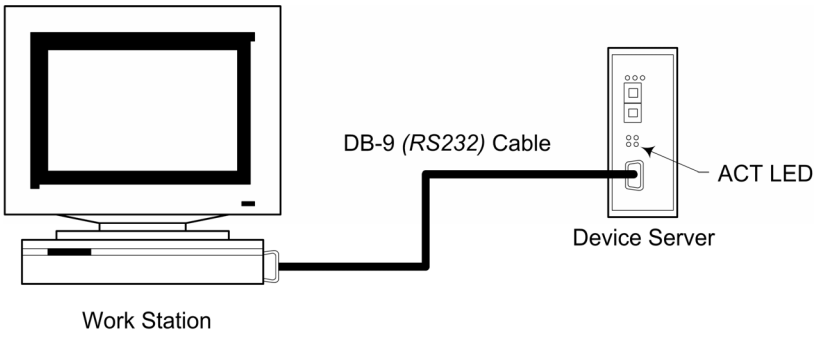
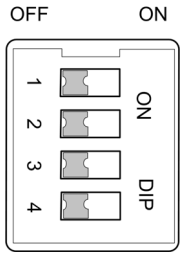


Figure 13: DB-9 Cable Installation

DIP Switches

DIP switch position descriptions

The Device Server features four DIP switches on the top panel that set the responds for the alarm in case of power loss or link failure. Figure 14 shows the DIP switch and a chart that explains each setting.



No	Description	Default
1	Primary power alarm *(enable ON, disable OFF)*	OFF
2	Redundant power alarm *(enable ON disable OFF)*	OFF
3	Fiber port alarm *(enable ON disable OFF)*	OFF
4	N/A	OFF

Figure 14: Dip Switch Settings and Explanations

Note: DIP switch changes will not become active until the Device Server is power cycled *(turned OFF then ON)*.

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Section III
Operations

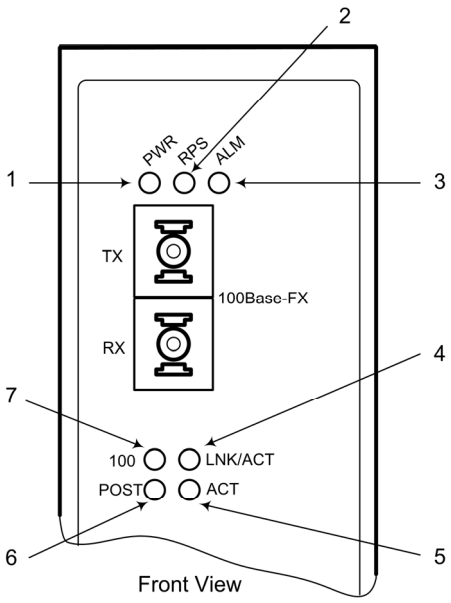
In this section These are the topics:

Topic	See Page
Light Emitting Diodes (LEDs)	22
Device Server configuration	23
Configuration software	25

Light emitting diodes (LEDs)

LEDs

The Device Server has LED indicators located on its front panel. The LEDs present at-a-glance network status, and provide real-time connectivity information. Figure 15 shows the LEDs and a chart that explains the function of each.



	LED	Description
1	Power (PWR)	Lights green when input power is good
2	Redundant Power (RPS)	Lights green when receiving external power from redundant input source
3	Alarm (ALM)	Lights red, signaling an alarm *(when an external alarm is connected)* during a down link condition on any port, or during primary/redundant power failures
4	LNK/ACT	Lights green when connected to another device. Flashes *(amber)* to indicate when the fiber port receives link pulses from a compliant device *(fiber port only)*.
5	ACT	Lights to indicate when the serial port is receiving link pulses or data from a compliant device
6	POST	Lights *(amber)* when the Power on Self Test was successful; flashes when performing the POST
7	100	Lights *(amber)* to indicate when receiving data from at 100Mbps *(fiber port only)*

Figure 15: LEDs and Description Chart

Device Server configuration

Introduction

Use a web browser to configure the Device Server. You can set the TCP/IP configuration for the device to monitor and manage attached Serial Devices via Serial IP Redirector software.

Web access

Once connected to a network, the Device Server is accessible via a web browser. To access the Device Server via a web browser, do the following:

Step	Action
1.	Type the default IP 192.168.0.254 address *(if connecting with the default IP)* at web browser to launch the login dialog box. See Figure 16.

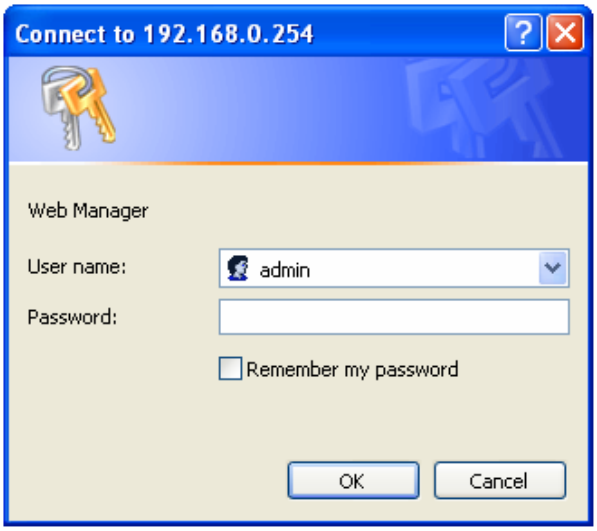


Figure 16: Login Dialog Box

Note: The default user name is "admin;" no password has been assigned. However, you can change the user name and password within the GUI via submenu item "User Config."

2.	Enter default user name "admin" as shown in Figure 16.
3.	Click the OK button to launch the Device Server's graphical user interface (GUI) main menu screen, shown in Figure 17.

Continued on next page

Device Server configuration, *continued*

Web access *(continued)*

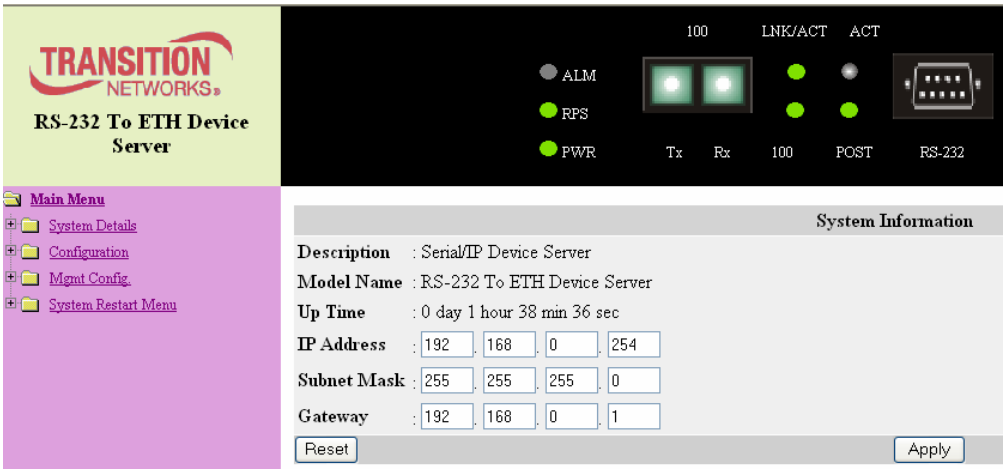


Figure 17: Main Menu Screen

Configuration software

Expanded software tree

On the left side of the GUI screen, under the Transition logo, are five menu items:

- System Details
- Configuration
- Mgmt Config
- SNMP
- System Restart

Figure 18 shows the expanded software tree; an explanation of each menu option starts on the following page.

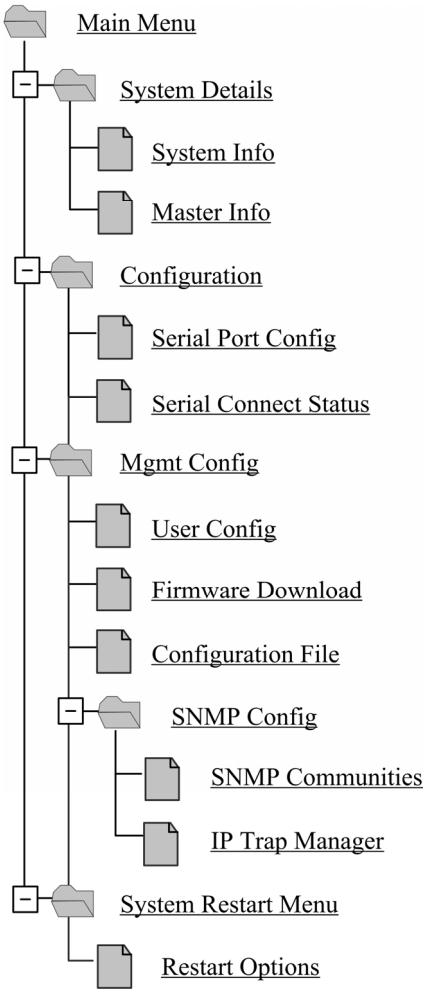


Figure 18: Expanded Configuration Software Tree

Continued on next page

Configuration software, continued

Systems details menu options

Click the Systems Details link to show its two submenu options:

- System Info
- Master Info

System information submenu

Click the "system info" link to show the Device Server system information submenu. See Figure 19.

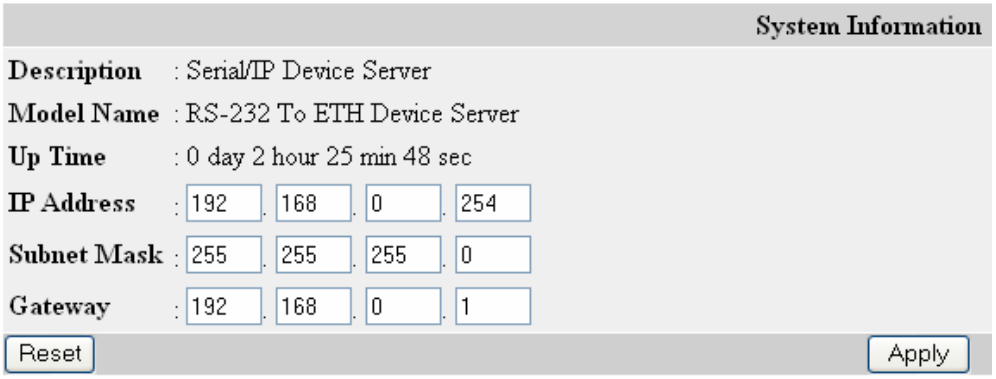


Figure 19: System Info Submenu

This menu option provides a description of the Device Server, model name, along with the up times *(day/hour/minute/second)*. It also allows editing the IP address, subnet mask, and gateway.

Click the APPLY button to implement any changes. Click the RESET button to restore the original settings before applying any changes.

Master information submenu

Click the "master info" link to launch the Device Server master information read only submenu. See Figure 20.



Figure 20: Master Information Read Only Submenu

This read-only menu displays the hardware and firmware versions.

Continued on next page

Configuration software, continued

Configuration menu options

Click the Configuration link to show its two submenu options:

- Serial Port Config
- Serial Connect Status

Serial port config submenu

Click the "serial port config" link to launch the Device Server serial port configuration submenu. See Figure 21.

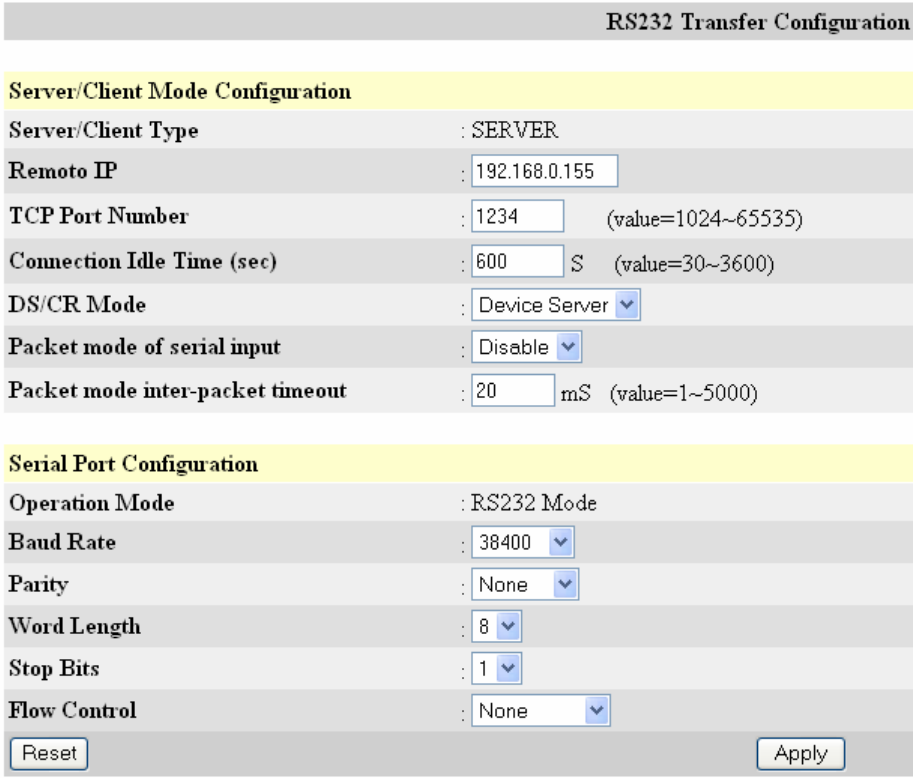


Figure 21: Serial Port Transfer Configuration Submenu Display

Use this menu to configure server/client mode and the serial port. This menu shows the serial port configuration, and allows configuring all fields.

When using a serial device with Modbus RTU protocol, "enable" Packet mode for the serial input. Also, enter an appropriate inter-packet timeout value to facilitate smooth data communications. Click the APPLY button to save and activate the changes. Click the RESET button to return to the previous settings before applying the changes.

The following explains the server/client mode configuration submenu items.

Continued on next page

Configuration software, continued

Serial port config submenu *(continued)*

Submenu Item	Description
Server/Client Type	Defines whether the Device Server is acting as a server or a client. In Device Server Mode, this setting will always be Server. In Converter Mode, this setting can be either Server or Client.
Remote IP	In Converter Mode, enter the IP address of the remote device. This field is NOT USED in Device Server Mode.
TCP Port Number	Device Server mode (DS): the TCP port number is the number that the Device Server uses to listen for connections; also, other devices must use this port to contact the Device Server. Converter mode: both converters use the TCP port number to communicate with the host.
Connection Idle Time	This setting only applies to Converter Mode. The time value *(in seconds)* is the maximum time that the TCP port will remain open with no activity. Once the time value is reached, the Device server closes the port to prevent the port from remaining open indefinitely. This field is NOT USED in Device Server mode.
DS/CR Modes	Device server (DS) mode, also know as TCP/IP mode, is used to connect a serial device to a host via an Ethernet network. This mode allows using an existing COM-port-based software platform across an existing Ethernet LAN. See Figure 22.

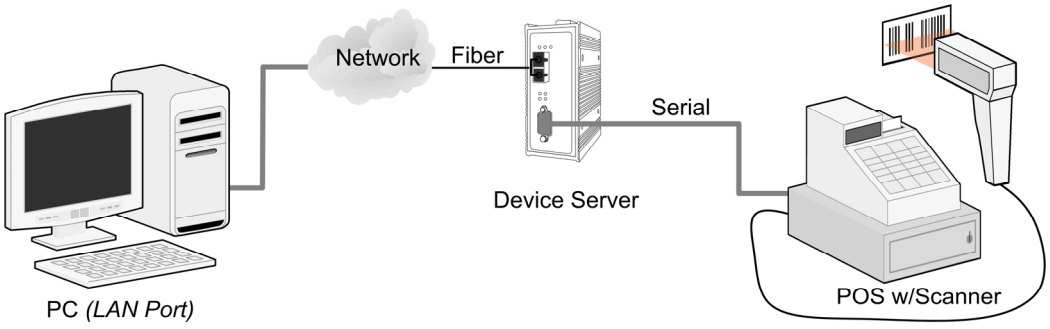


Figure 22: Serial Device Connection to a Host via Ethernet Network

Continued on next page

Configuration software, continued

Serial port config submenu *(continued)*

Submenu Item	Description
DS/CR Modes *(continued)*	Converter Mode (CR) is used for serial tunneling across an Ethernet network between two serial ports to simulate a direct serial connection between the devices. See Figure 23.

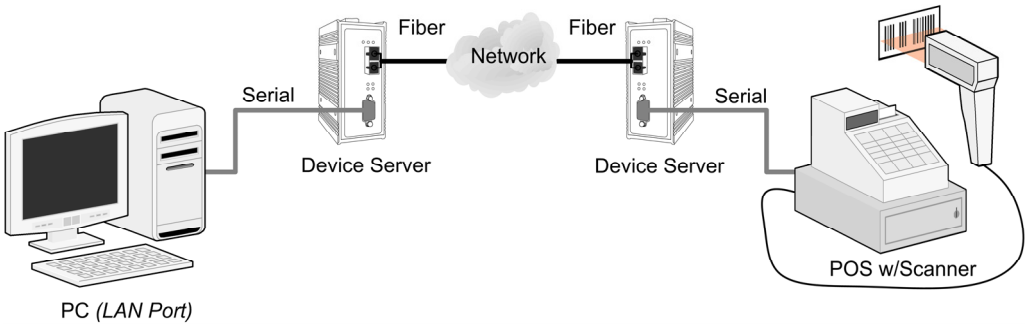


Figure 23: Serial Tunneling

Packet Mode of Serial Input *(enable/disable)*	Default is disabled. This will be the setting for the serial data arriving at the serial port in a bit stream. Enable if serial data on the serial interface will be in packet mode.
Packet Mode Inter-Packet Timeout	This time value *(in milliseconds)* is the delimiter timeout value between serial packets. This only applies if packet mode of the serial input is enabled. The value will largely depend on the serial device connected to the Device Server or the field bus protocol used *(i.e., Modbus, etc.)*.

Continued on next page

Configuration software, continued

Serial connect status submenu

Click the "serial connect status" link to launch the Device Server serial connection status submenu. See Figure 24.

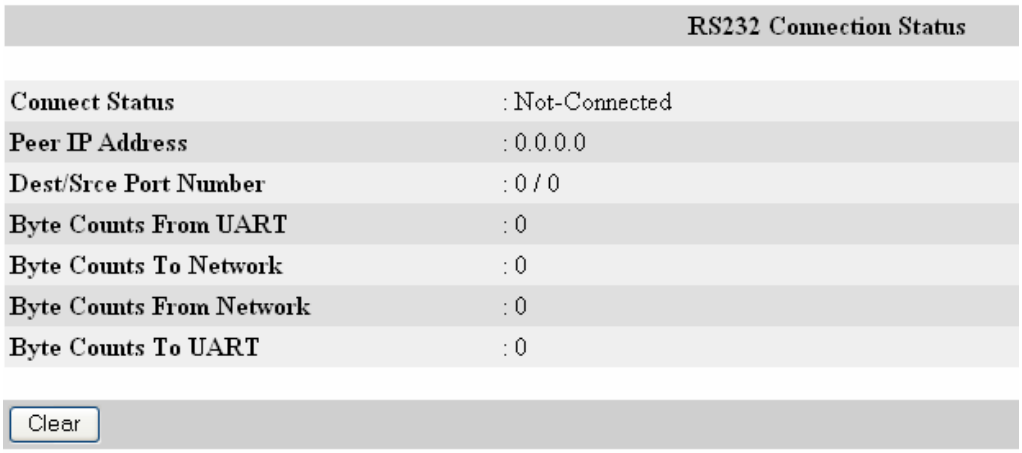


Figure 24: RS-232 Port Connection Status Submenu Display

This menu provides instant information about serial port connectivity. In this submenu, you can view a current connection status instance; also, clear the information on the screen by clicking the CLEAR button. A description of each menu item is shown below.

Submenu Item	Description
Connect Status	Server or client.
Peer IP Address	IP of the remote PC that is accessing the device attached to the Device Server's serial port.
Dest/Srce Port Number	Shows the destination and source port numbers—source port number will be as configured.
Byte Counts From UART	Displays the number of bytes transmitted from the serial device.
Byte Counts to Network	Displays the number of bytes received on the TCP/IP network.
Byte Counts From Network	Displays the number of bytes transmitted from the TCP/IP network.
Byte Counts to UART	Displays the number of bytes received by the serial device.

Continued on next page

Configuration software, continued

Mgmt config menu options

Click the Mgmt config link to show its four submenu options:

- User Config
- Firmware Download
- Configuration File
- SNMP Config

User config submenu

Click the "user config" link to launch the Device Server user configuration submenu. See Figure 25.

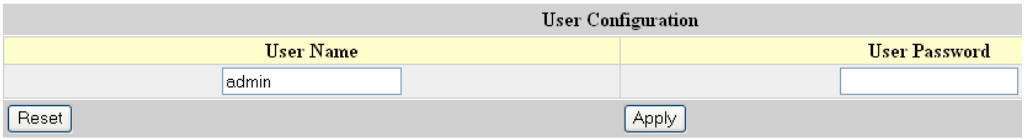


Figure 25: User Configuration Submenu

This option allows you to establish a username and password for Device Server management. To change the user name and password, do the following:

Step	Action
1.	Type the new user name in the user-name field.
2.	Type the password in the password field.
3.	Click the APPLY button to set the user name and password.

IMPORTANT

Write down the new user name and password and keep the information in a safe place. This information will be required in the future to access the management portion of the software.

Also, use this same user name and password, if established here, in the Redirector software to communicate with the Device Server.

Continued on next page

Configuration software, continued

Firmware download submenu

Click the "firmware download" link to launch the Device Server firmware download submenu. You can upgrade the firmware (FW) via HTTP or TFTP. See Figure 26.

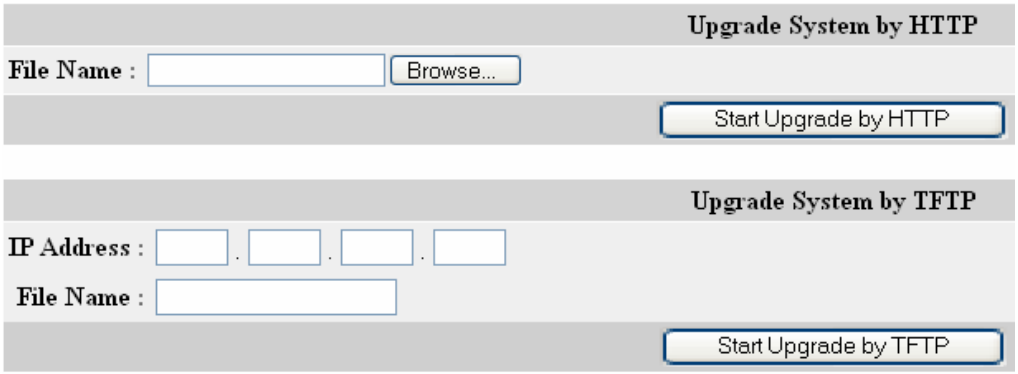


Figure 26: Firmware Upgrade Submenu

FW upgrade via HTTP

To upgrade the firmware via HTTP, do the following:

Step	Action
1.	Click the BROWSE button to locate the firmware, as shown in Figure 27.

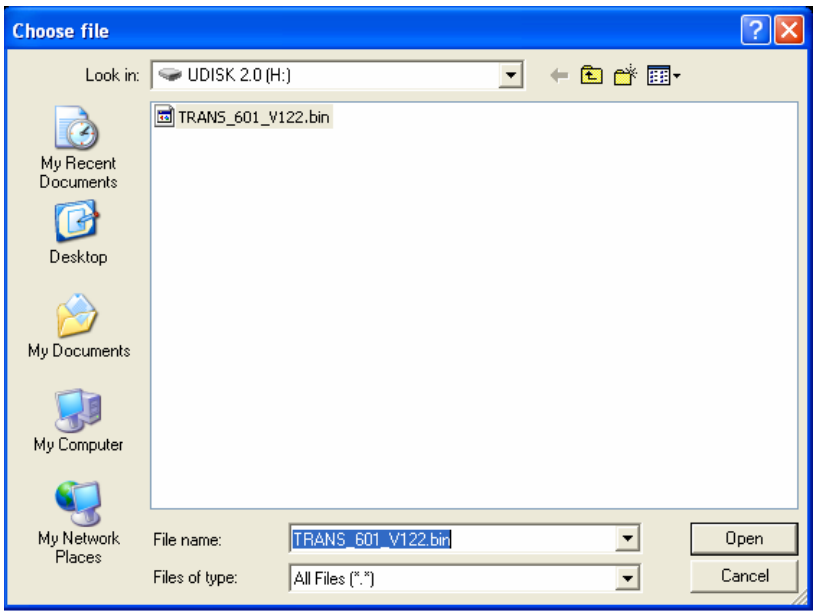


Figure 27: Choose File Dialog Box

Continued on next page

Configuration software, continued

FW upgrade via HTTP *(continued)*

Step	Action
2.	Click the OPEN button on the choose file dialog box to populate the file name field with the firmware-upgrade address, as shown in Figure 28.

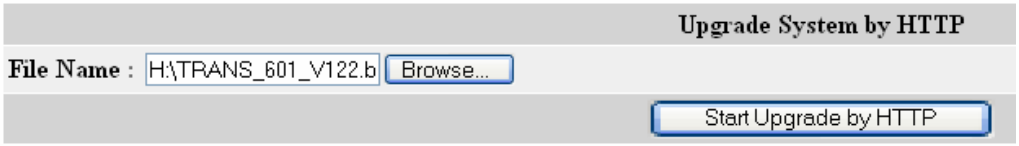


Figure 28: HTTP Firmware File Name Captured

3.	Click the START UPGRADE BY HTTP button to start downloading the firmware and a system upgrade timeout display will appear, as shown in Figure 29.

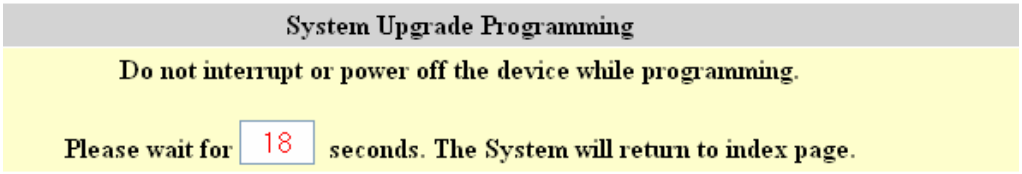


Figure 29: System Firmware Upgrade Time Out Display

Continued on next page

Configuration software, continued

FW upgrade via HTTP *(continued)*

When the firmware upgrade is complete, the index page *(system information)* will appear, as shown in Figure 30.

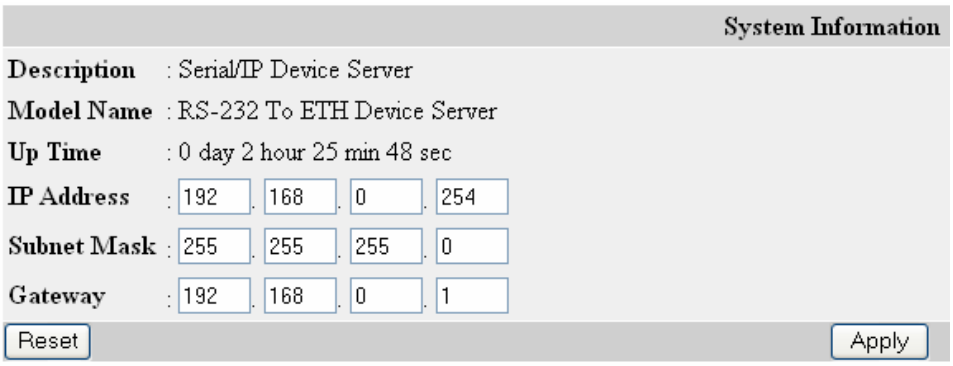


Figure 30: Index Page *(System information)* Display

Click the serial port config link to modify the configuration, based on the new firmware.

FW upgrade via TFTP

Note: The firmware file must be stored on the TFTP server before upgrading by this method can occur.

To upgrade the via TFTP server, do the following:

Step	Action
1.	Enter the IP address the TFTP server field, as shown in Figure 31.

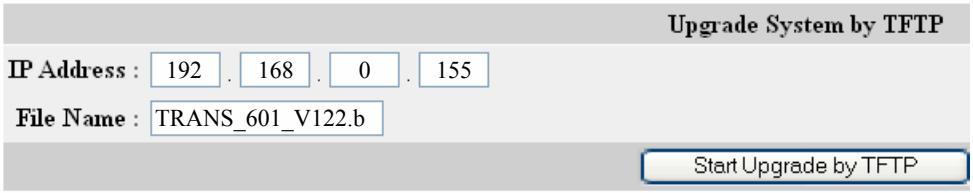


Figure 31: TFTP Upgrade Submenu Display

2.	Enter the file name in the file name field, as shown in Figure 31 above.

Continued on next page

Configuration software, continued

FW upgrade via TFTP *(continued)*

Step	Action
3.	Click the START UPGRADE BY TFTP button to start downloading the firmware, and a system upgrade timeout display will appear as shown in Figure 32.

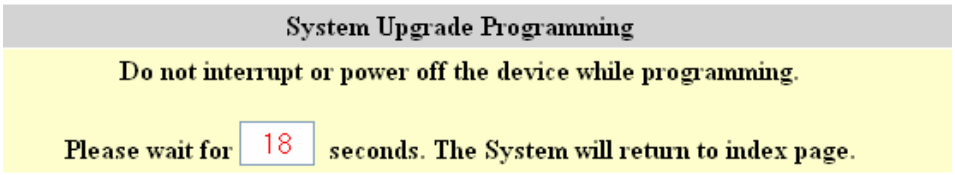


Figure 32: System Firmware Upgrade Time Out Display

When the firmware upgrade is complete, the index page *(system information)* will appear, as shown in Figure 33.

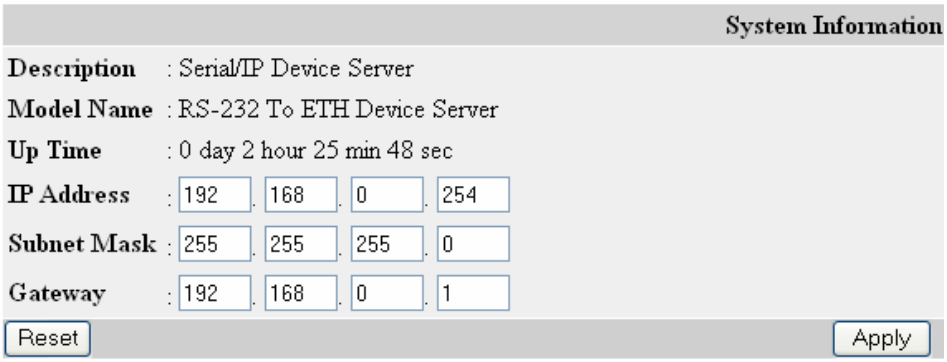


Figure 33: Index Page *(System information)* Display

Continued on next page

Configuration software, continued

Configuration file submenu

Click the "configuration file" link to show the Device Server system backup submenu, shown in Figure 34.

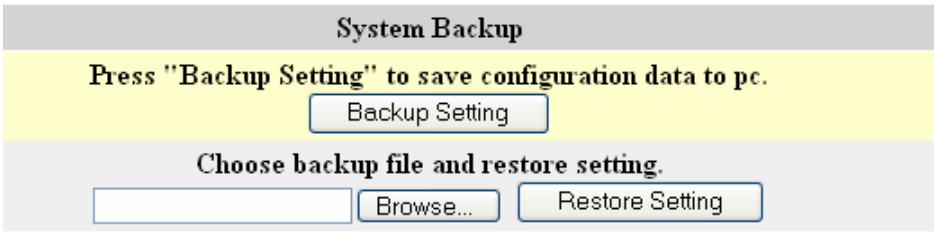


Figure 34: Configuration System Backup File Display

Configuration file backup

To "backup" the configuration file to the local PC, do the following:

Step	Action
1.	Click the BACKUP SETTING button on the display, and the save "config file" dialog box will appear, as shown in Figure 35.

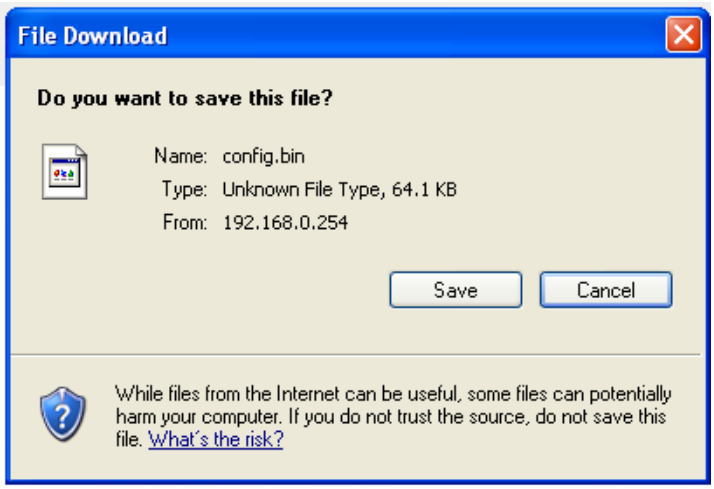


Figure 35: Save System Backup File Dialog Box

2.	Click the SAVE button to save the config file and a prompt will appear to select a location for storing the file on the local PC.
3.	Select the location then click the SAVE button to save the config file.

Continued on next page

Configuration software, continued

Configuration file restore

To Restore the backup configuration file, do the following:

Step	Action
1.	Enter the file name or click the BROWSE button to locate the file. See Figure 36.

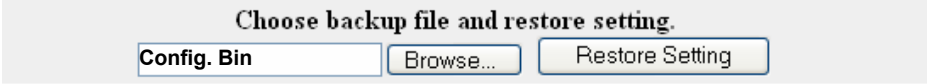


Figure 36 Backup File Restore Display

2.	Click the RESTORE SETTING button, and a restore timeout display will appear as the backup file is being restored. See Figure 37.

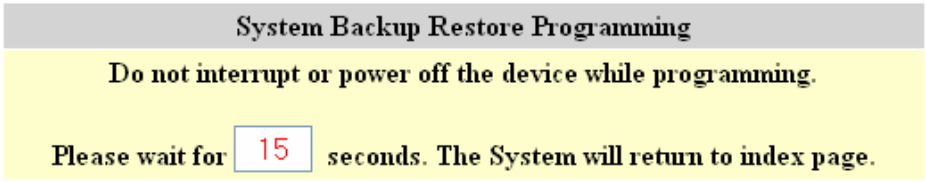


Figure 37: System Backup Restore Timeout Display

When the backup file is restored, the index page *(system information)* will appear on the display, as shown in Figure 38.

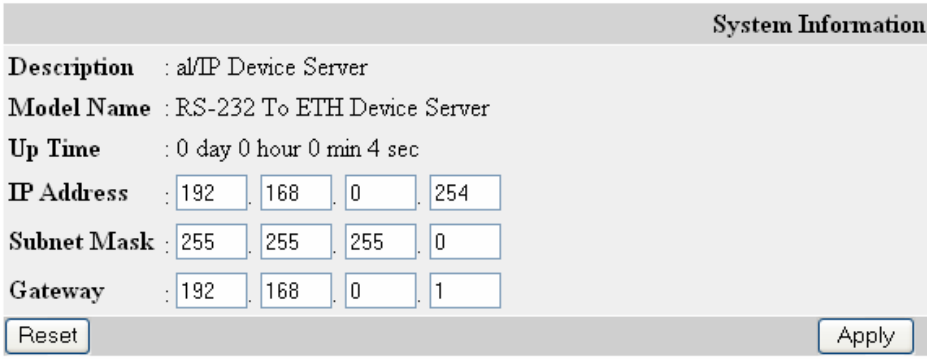


Figure 38: Index Page *(System Information)* Display

Continued on next page

Configuration software, continued

SNMP configuration menu

Click the SNMP config link to show its two submenus:

- SNMP Communities
- IP Trap Manager

SNMP communities submenu

Click the "SNMP Communities" link to launch the SNMP Communities submenu option. See Figure 39.

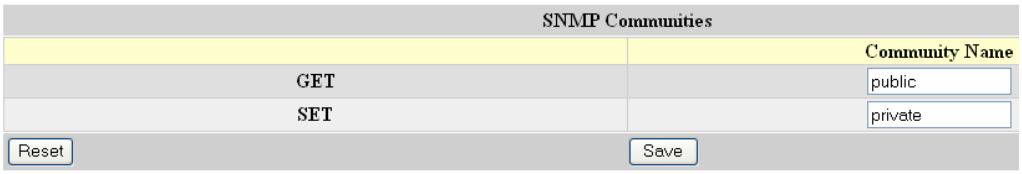


Figure 39: SNMP Communities Display

Use an external SNMP-based application to configure and manage the Device Server. This management method requires the SNMP agent on the Device Server and on the SNMP network management station (NMS) to use the same community string. This management method uses two community strings: "get" community string and "set" community string:

- If the SNMP NMS knows the "Set" community string, it can read and write to the MIBs.
- If it only knows the "Get" community string, it can only read MIBs.

The default get and "Set" community strings for the Device Server are "public" and "private" respectively.

When new parameters are assigned, click the SAVE button to implement the new settings. Click the RESET button to restore the original parameters if the changes have not been saved.

Continued on next page

Configuration software, continued

IP trap manager submenu

Click the "IP Trap Manager" link to launch the IP Trap manager submenu option, shown in Figure 40.

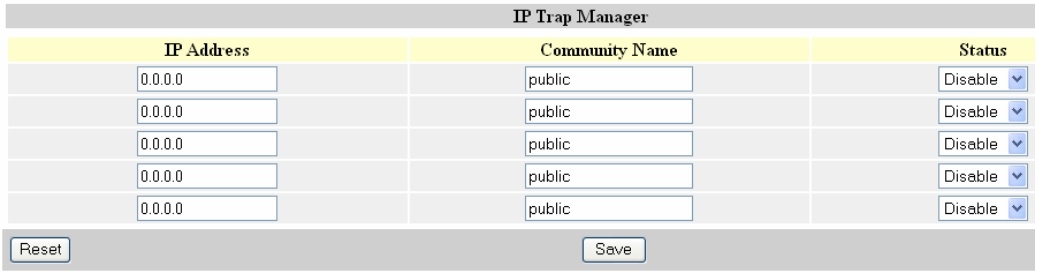


Figure 40: IP Trap Manager Option display

Table 2 describes the fields on the IP Trap Manager display.

Table 2: IP Trap Parameters and Descriptions

Parameter	Description
IP Address	Enter the IP address(s) of the terminal(s) that you want to monitor for failures. When a failure occurs, an alarm will be sent if enabled. Enter their community names and disable or enable their alarm function accordingly.
Community Name	SNMP community names.
Status	Alarm function: disabled or enabled.

Continued on next page

Configuration software, continued

IP trap manager submenu *(continued)*

You can configure up to five management stations to receive authentication failure messages or other trap messages from the Device Server.

To assign the IP Traps, do the following:

Step	Action
1.	Click the "IP address" parameter field. See Figure 41.
2.	Type or paste the IP address in the field.
3.	Click the "community name" parameter field. See Figure 41.
4.	Type a name in the field.
5.	Select status *(enabled or disabled)*.
6.	Click the SAVE button to save and establish the trap.

Note: Click the RESET button to reestablish the original parameter(s) before saving changes.



Figure 41: Sample Configured IP Trap Manager Display

Continued on next page

Configuration software, continued

System restore submenu

Click the System Restart link to show the Restart submenu options:

- System Restore
- Reset

Note: You can "restore" or "reset" the Device Server remotely via software.

System restore

Click the RESTORE button, shown in Figure 42, to set the Device Server back to factory defaults. After the timeout display disappears all saved configuration data will be erased.

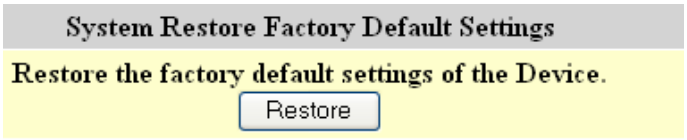


Figure 42: System Restore Button

System reset

Click the RESET button, shown in Figure 43, to reset the Device Server. After the timeout disappears the system will be reset, but all configuration data will be maintained *(IP address, etc.)*.

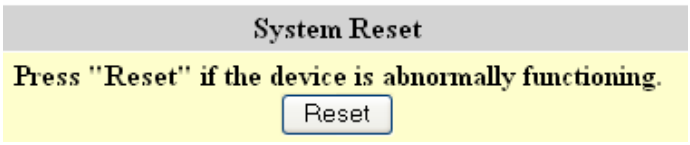


Figure 43 System Reset Button

Note: System Reset has the same functionality as power cycling the Device Server.

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Section IV
Serial IP Redirector Software

In the section This are the topics:

Topic	See Page
Serial IP redirector software description	44
Getting started and software pre-installation considerations	45
Installing IP redirector software	46
Upgrading the software	50
Creating virtual COM ports	51

Serial IP redirect software description

COM port usage

The Serial/IP Redirector Software adds "virtual" COM ports to Windows operating systems. Similar to regular COM ports that allow PC applications to use local serial ports, Serial/IP COM ports allow PC applications to use the serial port on the Device Server. Because Serial/IP COM ports work like regular COM ports, PC applications do not have to be changed to use the Device Server through the Serial/IP Redirector.

Operating environment

The Serial/IP Redirector software runs as a kernel-level device driver in the Windows operating system. This means that Serial/IP COM ports are available to PC applications at all times, even if no user is logged in. The Serial/IP Redirector is a high-performance kernel-mode driver with a small “footprint,” modest memory requirements and low overhead. The Serial/IP applet in the Windows control panel configures Serial/IP COM ports and displays their activity.

Configuration wizard

The Serial/IP Redirector software detects and uses the specific protocol supported by the Device Server. When configuring Serial/IP COM port, use the Serial/IP Configuration Wizard to verify immediately that the Serial/IP Redirector can communicate with the Device Server over the network.

Networked device server

The networked pieces fit together in the following manner:

Stage	Description
A.	Install the Device Server on the network and connect a device to its serial port.
B.	Configure the Device Server so that its serial port is available to the network via TCP/IP.
C.	Install the Serial/IP Redirector software on the PC that will use the device attached to the Device Server.
D.	Configure the Serial/IP Redirector software to create a virtual COM port.
E.	Specify the IP address of a Device Server and the TCP port number that provides access to its serial port.
F.	In the PC application, change settings to use the Serial/IP COM port instead of the local COM port.
G.	Thereafter, the PC application can use the serial port on the Device Server instead of local serial ports.

Getting started and software pre-installations considerations

Pre-installation considerations

Supported platforms:

- Intel-compatible PCs with 32-bit Pentium-class processor
- At least 4 megabytes free space on the boot drive
- Windows XP sp1 or sp2, Server 2003, 2000, NT 4.0 sp6, 98/95/Me, Microsoft .NT/2000/2003 Terminal Server, Citrix MetaFrame Access Suite
- VMware

Software requirements:

- Windows Installer 2.0 or later: This software is included in Windows XP and later, and is available for NT 4.0, 2000 and 95 from the Microsoft Download Center. It is also available for Windows 98 in Internet Explorer 5.5
- Internet Explorer 4.0 or later *(version 5.5 or later for Windows 98)*
- For Windows 95: Microsoft Windows Socket 2 update

Network requirements:

- A TCP/IP network connection from the local computer to the serial Device Server.
- The throughput and performance of the network connection must exceed the requirements of the application in total. *(An Ethernet local area network will easily meet this requirement.)*
- If firewalls are in the network path to the serial Device Server, they must allow TCP connections to the server on the TCP port number(s) on which the server provides its devices. If used, this includes Windows XP service-pack 2 firewall.

What is needed?

Before installing the Serial/IP Redirector software, do the following:

Step	Action
1.	Obtain administrator privileges before installing the software.
2.	Install the Device Server on the TCP/IP local area network.
3.	Configure the Device Server to provide its serial port to the network,
4.	Follow the general guidance about Device Server configuration in this manual. Also, see the latest “help files” the Serial/IP Redirector software by clicking the HELP button on the Serial/IP Control Panel dialog box.
5.	Install the software on the PC that will use the serial port.

Installing serial IP redirector software

Software installation

To install the software, do the following:

Step	Action
1.	Login as a user with administrator privileges.
2.	Quit all Windows programs using COM ports.
3.	Install the Serial/IP Redirector Software CD into the PC/Laptop that will be in communication with the serial port of the Device Server to launch the “installation wizard” dialog box, shown in Figure 44.



Figure 44: Installation Wizard Dialog Box

4.	If the install wizard dialog box does not appear, at the command line type: **Serial IP Redrector432.exe** and then press the ENTER key.
5.	Press the NEXT button and a “license agreement” dialog box will appear, as shown in Figure 45.

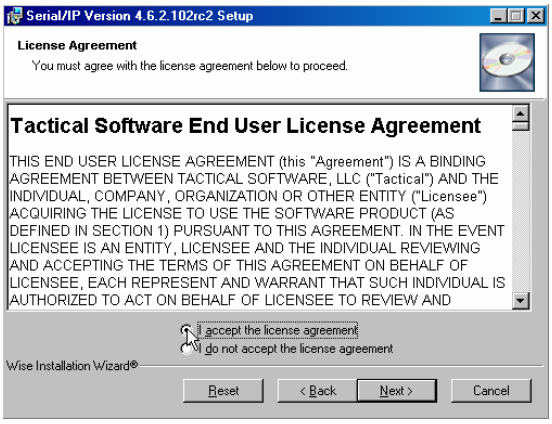


Figure 45: Agreement Dialog Box

Continued on next page

Installing serial IP redirector software, continued

Step	Action
6.	Click the AGREE radio button.
7.	Click the NEXT button and the “destination folder” will appear as shown in Figure 46.

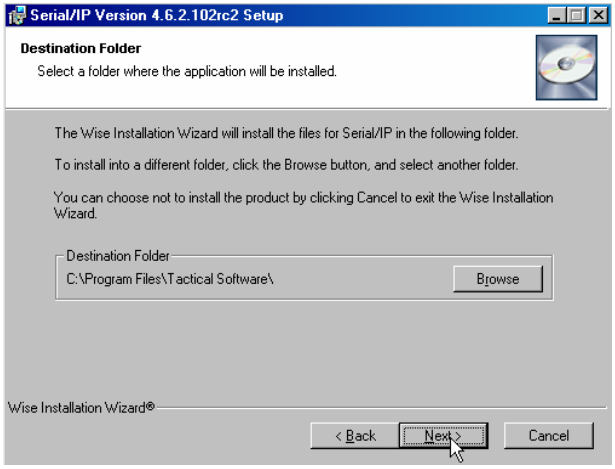


Figure 46: Software Destination Folder Dialog Box

8.	If the destination folder in the dialog box is not where you want the software to load, click the BROWSE button, and then select a new location.
9.	Click the NEXT button and the “select features” dialog box will appear, as shown in Figure 47.

Continued on next page

Installing serial IP redirector software, continued

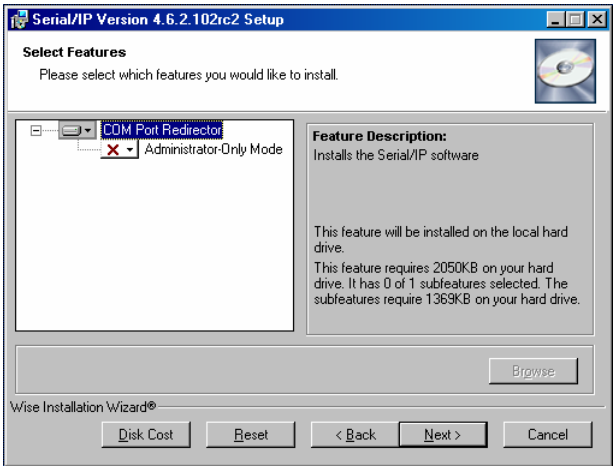


Figure 47: Select Features Dialog Box

On the select features dialog box, you can select how much of the software you want to load on the PC/Laptop *(disk space consideration)* via the pulldown menu. See Figure 48.

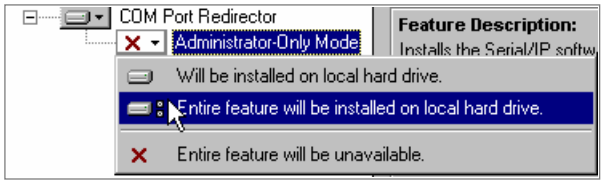


Figure 48: Pulldown Menu Options

Note: The "administrator only" option restricts use of the Serial/IP Control Panel to users with administrator privileges. If you select this option, non-administrator users can use the Serial/IP Redirector, but they cannot open the Serial/IP Control Panel.

Step	Action
10.	Click the NEXT button on the select features dialog box to launch the "ready to install software" dialog box, shown in Figure 49.

Continued on next page

Installing serial IP redirector software, *continued*

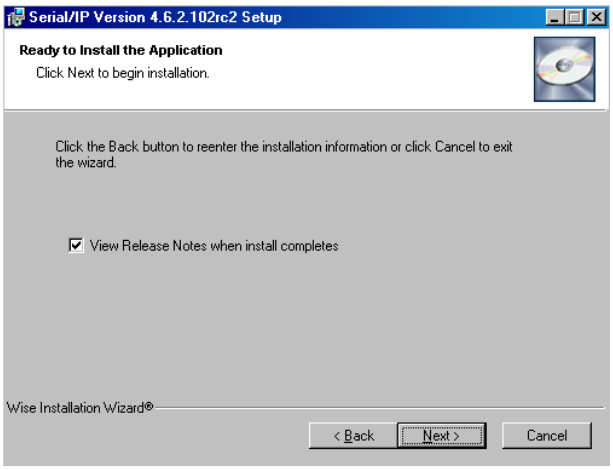


Figure 49: Ready to Install Application Dialog Box

Step	Action
11.	Click the view release notes check box, if not selected.
12.	Click the NEXT button to install the software. When completed, the "successfully installed" message box will appear, as shown in Figure 50.

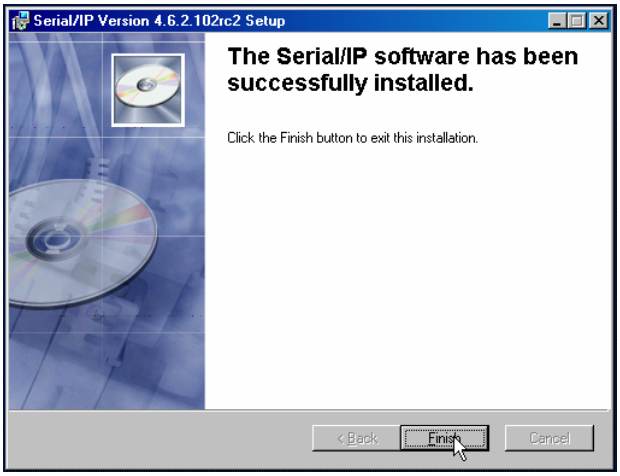


Figure 50: Install Successful Message Box

13.	Click the FINISH button and the "release notes" will appear on the screen.
14.	Close the "release notes" and the Serial IP Control Panel will appear.

Upgrading serial IP redirector software

Software upgrades

If you are installing a software upgrades, please note:

- The existing software must be the same major version *(version 4)*.
- The setup program will remove the existing Serial/IP software.
- The virtual COM port selections and settings will be maintained.

When upgrading the software, you will be prompted to uninstall the old version of the software, as shown in Figure 51.

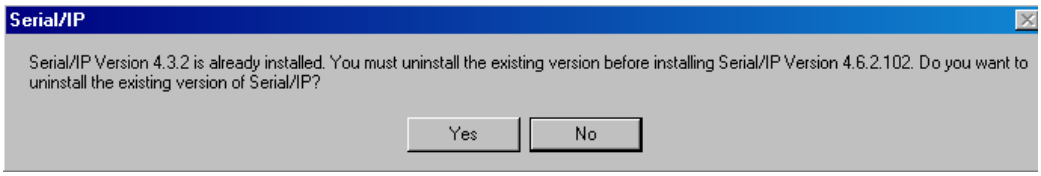


Figure 51: Uninstall Message Box

IMPORTANT

Excluding Windows XP, in all other Windows environments you must "restart" the computer to finish uninstalling the software before installing the upgrade. Not restarting the computer could result in an error during the software upgrade.

Step	Action
1.	Click the YES button to uninstall the software; when successful the "installation wizard will appear, shown in Figure 52.
2.	Restart the computer, if necessary, before installing the upgrade.

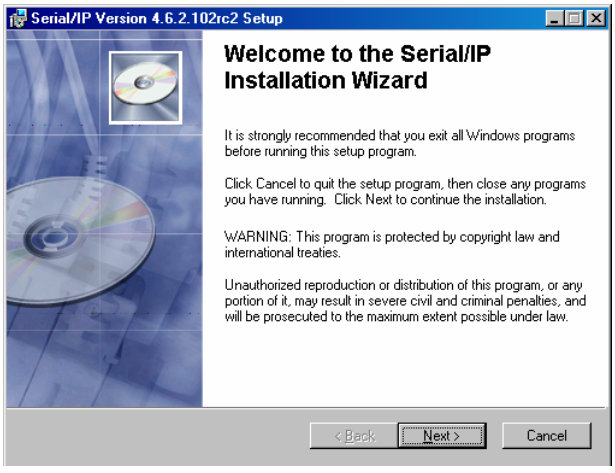


Figure 52: Installation Wizard

Creating virtual COM ports

Control panel

After loading the software, the Serial IP Control Panel dialog box will appear, as shown in Figure 53.

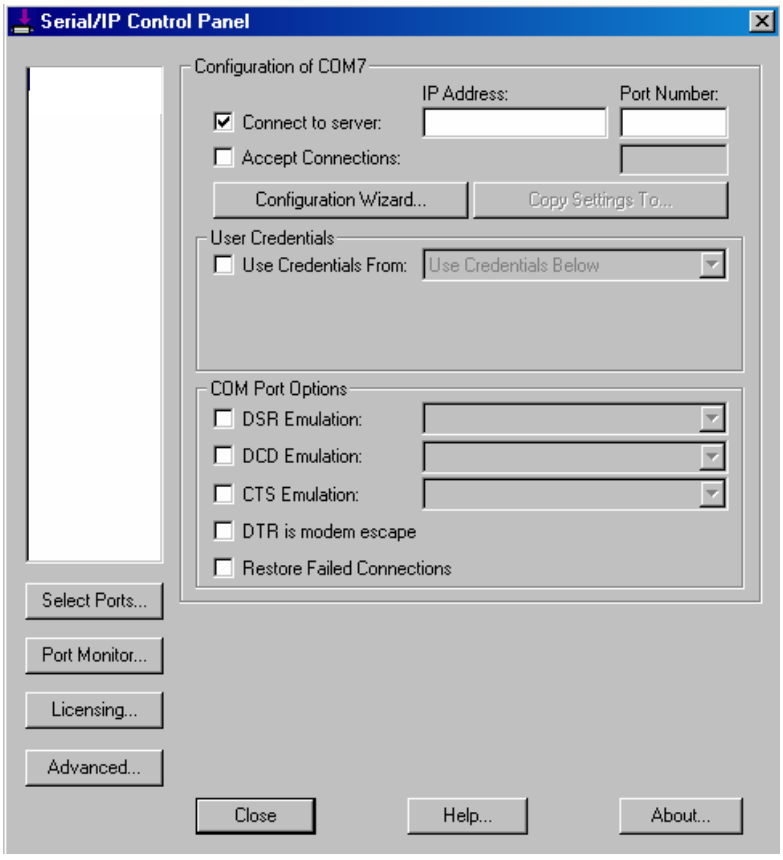


Figure 53: Serial IP Control Panel Dialog Box

Use the "control panel" to configure virtual COM ports and advanced options.

Note: If the Serial/IP Redirector has been installed with the Administrator-Only Mode feature, the Serial/IP control panel will be available only to users with Administrator privileges. Changed settings do not affect the operation of currently active virtual COM ports.

Continued on next page

Creating virtual COM ports, continued

Virtual COM port creation

Alternatively, you can edit the COM port ranges directly. Use individual COM port numbers *(such as 4, 5, 7)* and/or ranges of numbers *(such as 11-18, 30-53)* separated by commas. As you edit the COM port ranges, checkboxes in the upper panel will change accordingly. *(Invalid numbers or ranges will be displayed.)*

COM Port configuration

To configure virtual COM ports, do the following:

Step	Action
1.	On the control panel, click the SELECT PORTS button to bring up the "select ports" dialog box shown in Figure 54.

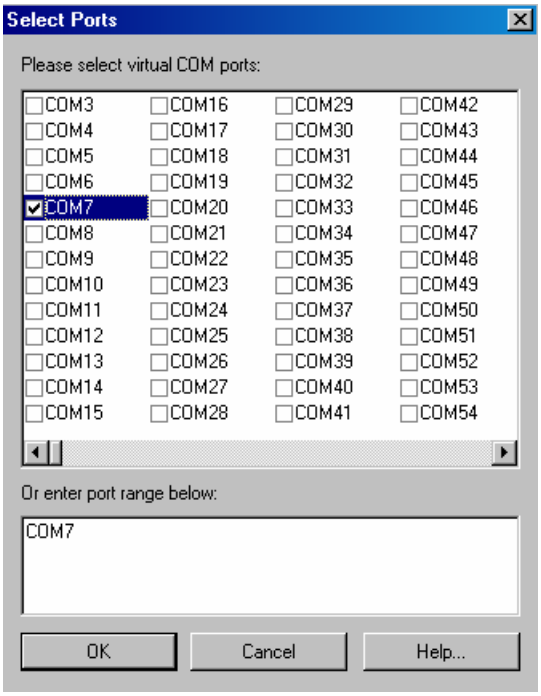


Figure 54: Select Ports Dialog Box

Note: You can select up to 4,096 virtual COM ports. COM1 and COM2 are normally physical ports, so they will not appear in the dialog box.

2.	Select a virtual COM port from the list *(COM7 in this example)*. The COM port selection will appear in the lower panel of the select port dialog box.
3.	Click the OK button to establish COM port 7.

Continued on next page

Creating virtual COM ports, continued

Step	Action
4.	On the Serial IP Control Panel, enter the IP address and port number of the Device Server. See Figure 55.
5.	Check “user credentials” and select “use credentials below” from the pulldown menu. See Figure 55.

Note: If a user name and password were set when setting up the Device Server, use that same user name and password here.

6.	Enter a “user name” and “password” if previously set. See Figure 55.

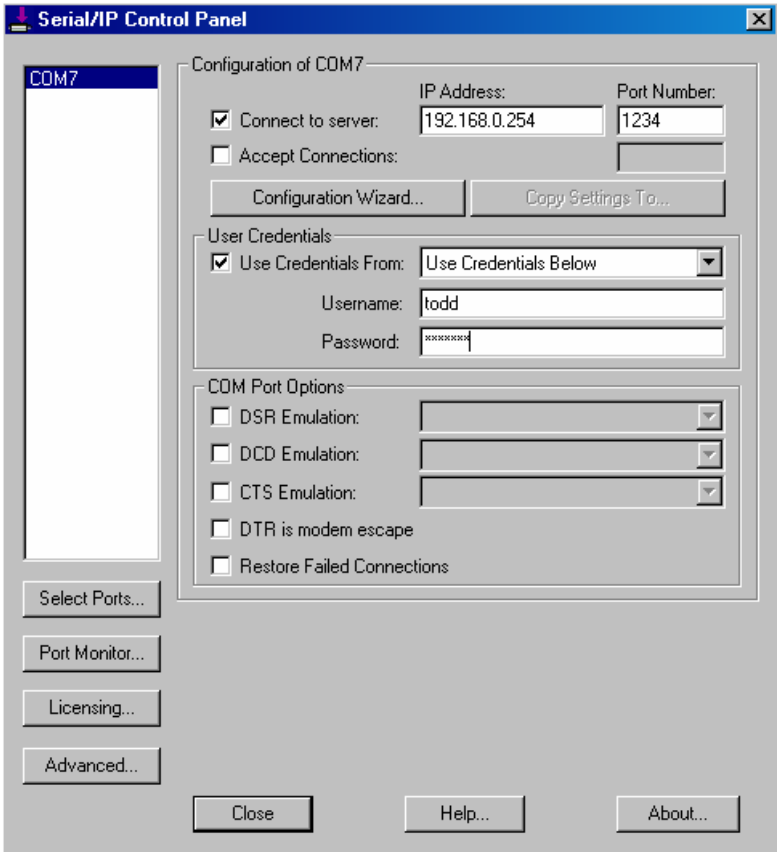


Figure 55: Virtual Port Configuration

Continued on next page

Creating virtual COM ports, continued

Step	Action
7.	Click the CONFIGURATION WIZARD button to bring up the "configuration wizard," shown in Figure 56.

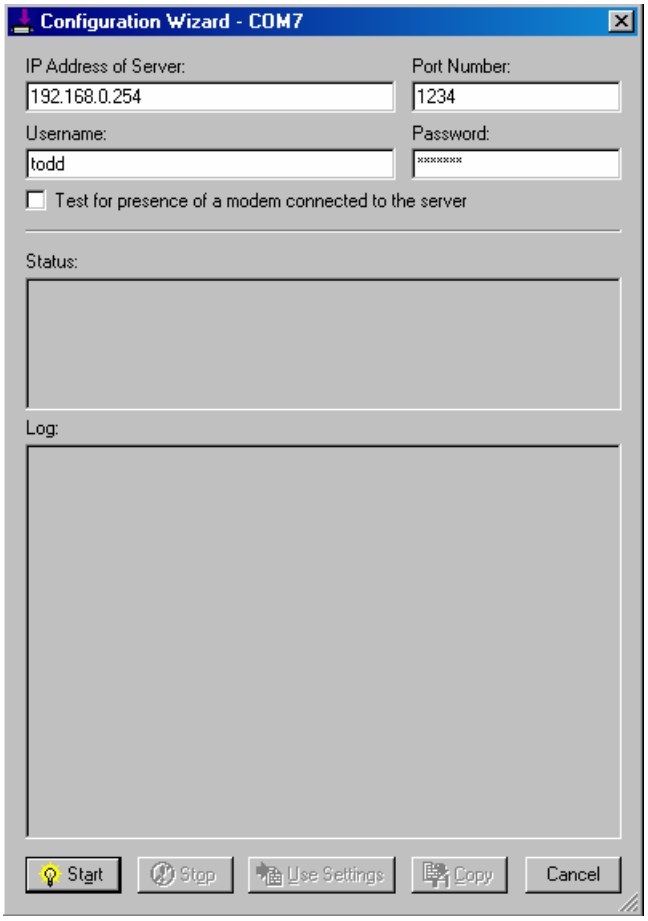


Figure 56: COM Port 7 Configuration Wizard

8.	If any of the settings are incorrect, change them.
9.	Click the START button. Note as the wizard runs, the "status panel" will show a summary of server characteristics. The "log panel" shows the wizard's interaction with the server. The wizard typically takes 5 to 15 seconds to complete its task.

Continued on next page

Creating virtual COM ports, continued

If the wizard fails

The wizard indicates errors in the status panel, with error details appearing in the log panel. In the case of an error, do the following before re-running the wizard:

Step	Action
1.	Review error messages in the status panel. See Figure 57.
2.	If necessary, review the messages in the log panel. See Figure 57.
3.	Correct the wizard settings.
4.	Restart the wizard with the corrected settings.

If the wizard is successful

The wizard indicates a successful run by messages in the status panel; also, the USE SETTING button will be active. See Figure 57.

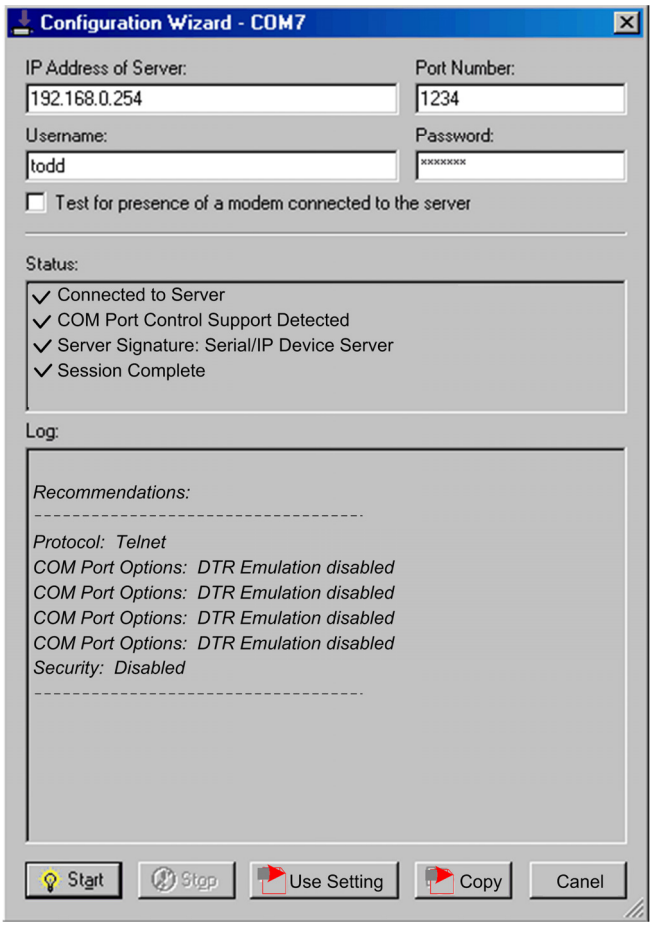


Figure 57: COM Port Configuration Wizard

Continued on next page

Creating virtual COM ports, continued

If the wizard is successful *(continued)*

Step	Action
5.	Click the USER SETTING button on the wizard to return to the control panel.
6.	Once the link is established, you can manage the device attached to the Device Server, using the Serial IP Redirector software installed on a remote computer. Click the PORT MONITOR button on the control panel to bring up the port monitor, shown in Figure 58.

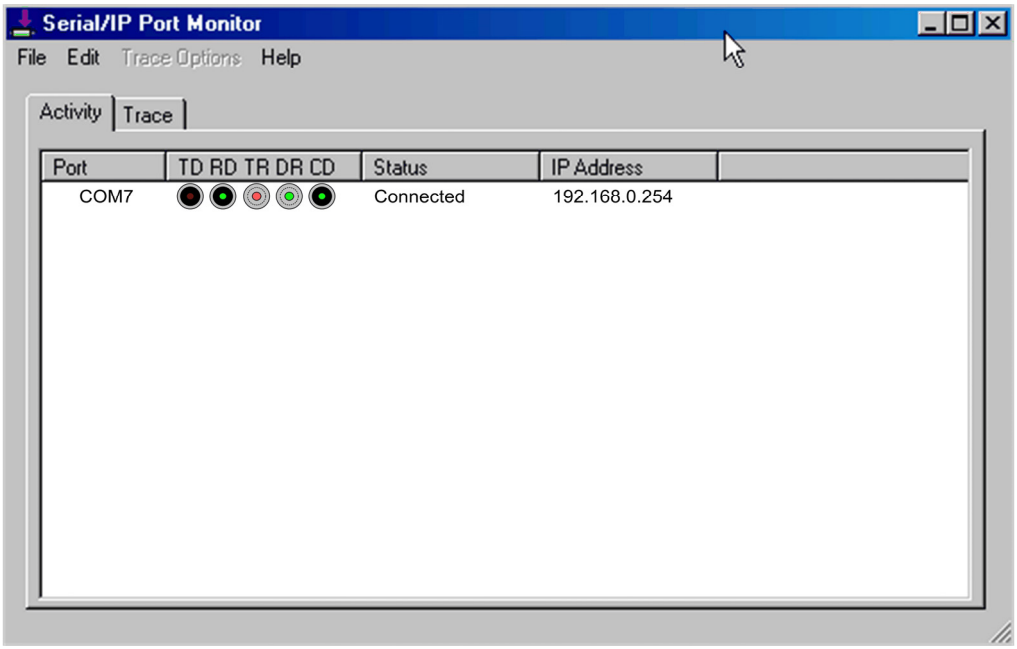


Figure 58: Serial/IP Port Monitor

Note: If more devices are attached and connected, the status and IP address of those devices will appear against each Virtual COM port listed.

Section V:
Troubleshooting

Introduction

This section provides basic troubleshooting information for the Device Server via a problem and corrective action table. The problems are stated in the problem column and the action(s) to take for the problem is stated in the corrective action column. If the corrective measures listed do not correct the problem, contact our 24-Hour Technical Support department at 1-800-260-1312, International: 00-1-952-941-7600.

In this section

These are the topics:

Topic	See Page
Troubleshooting problem and corrective action table	58

Troubleshooting problem and corrective action table

Problem	Potential Cause	Potential Solution
Device Server does not power up	• Is the wired terminal-block plug inserted into the Device Server?	• Wire and insert the terminal-block plug into the Device Server's terminal block
	• Is the power LED lit?	• Check that DC power is at the recommended levels. • Contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600
No activity at the DB-9 port	• Is the power LED lit?	• Check the power is turned ON.
	• Can the Device Server receive link pulses?	• Send link pass from the connected device *(if a computer, press any key and the Device Server's ACT LED will flicker each time you press the key.)*
	• Is the DB-9 cable properly installed at both ends?	• Verify that the cable at both ends is installed properly
	• Is the DB-9 cable good?	• Check pin assignments • Contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600
No activity on the fiber port	• Is the LNK/ACT LED lit *(green)*?	• Ensure that the fiber optic cable is installed properly into the Device Server and the compliant device • Power up the compliant connected device. • Contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600

Section VI:
Cable Specifications

Introduction This section provides copper and fiber cable specifications.

In this section These are the topics:

Topic	See Page
DB-9 *(RS-232)* serial cable specifications	60
Fiber cable and optic specifications	61

Copper DB-9 *(RS-232)* serial cable specifications

What is RS-232 *(DB-9)?*

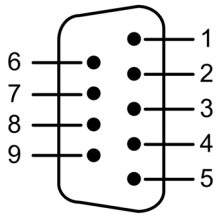
RS-232 is a serial device control protocol that provides an interface between Data Terminal Equipment (DTE) and Data Communications Equipment (DCE) that employs serial binary data interchanges.

DB-9 cable specifications

Wire category:	3 to 5
Maximum data rate:	100Kb/s, 115.2Kb/s asynchronous *(distance dependent)*
Gauge:	24 to 22 AWG
Maximum cable distance:	50 ft *(15.24 m)*

DB-9 cable pinouts

Figure 59 shows the DB-9 *(RS-232)* serial cable pin assignments and pinout chart.



DB-9 Connector Pin Assignments			
No	**Code**	**Description**	**Signal Direction**
1	DCD	Data Carrier Detect	IN
2	RX	Receive Data	IN
3	TX	Transmit Data	OUT
4	DTR	Data Terminal Ready	OUT
5	GND	Ground	—
6	DSR	Data Set Ready	IN
7	RTS	Request to Send	OUT
8	CTS	Clear to Send	IN
9	RI	Ring Indicator	IN

Figure 59: DB-9 Connector and Cable Pin Assignment Chart

Note: The Device Server is configured as a DTE device. Use a straight-through cable for connecting to a DCE device, or a crossover cable for connecting to other DTE devices.

Fiber cable and optic specifications

Fiber cable characteristics

Cable physical characteristics must meet or exceed IEEE 802.3™ specifications.

Parameter	Specification
Bit Error Rate:	$<10^{-9}$
Single mode fiber:	9 µm
Multimode fiber:	62.5/125 µm
Multimode fiber:	100/140, 85/140, 50/125 µm

Fiber optic specifications

The following shows the fiber optic specification:

Fiber Cable	Specifications
SDSFE3111-100	1300 nm multimode
Fiber-optic transmitter power:	min: -19.0 dBm max: -14.0 dBm
Fiber-optic receiver sensitivity:	min: -31.0 dBm max: -4.0 dBm
Link budget:	12.0dB
SDSFE3113-100	1300 nm multimode
Fiber-optic transmitter power:	min: -19.0 dBm max: -14.0 dBm
Fiber-optic receiver sensitivity:	min: -31.0 dBm max: -4.0 dBm
Link budget:	12.0dB
SDSFE3114-100	1310 nm single mode
Fiber-optic transmitter power:	min: -15.0 dBm max: -3.0 dBm
Fiber-optic receiver sensitivity:	min: -30.0 dBm max: -3.0 dBm
Link budget:	15.0 dB
SDSFE3115-100	1310 nm single mode
Fiber-optic transmitter power:	min: -15.0 dBm max: -8.0 dBm
Fiber-optic receiver sensitivity:	min: -34.0 dBm max: -7.0 dBm
Link budget:	19.0 dB
SDSFE3117-100	1550 nm single mode
Fiber-optic transmitter power:	min: -3.0 dBm max: 3.0 dBm
Fiber-optic receiver sensitivity:	min: -37.0 dBm max: 0.0 dBm
Link budget:	34.0 dB

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Section VII:
Contact Us, Warranty, & Conformity Information

Introduction

This section explains how to contact Transition Networks via Phone, fax, email, and direct mail. It also explains:

- What the warranty covers
- Who to contact to return product
- How and where to return the product

In this section

These are the topics:

Topic	See Page
Contact us	64
Conformity declaration	65
Warranty	66
Compliance information	68

Contact us

Technical support	Technical Support is available 24 hours a day. United States: 1-800-260-1312 International: 00-1-952-941-7600
Live Web chat	Chat live via the Web with a Transition Networks Technical Support Specialist. Log onto www.transition.com and click the Transition Now link.
Web-based training	Transition Networks provides 12-16 seminars per month via live web-based training. Log onto www.transition.com and click the Learning Center link.
E-Mail	Ask a question anytime by sending an e-mail message to our technical support staff @ techsupport@transition.com
Address	Transition Networks 6475 City West Parkway Minneapolis, MN 55344, U.S.A. Telephone: 952-941-7600 Toll free U.S.A & Canada: 800-526-9267 Fax: 952-941-2322

Conformity declaration

TRANSITION NETWORKS®

Declaration of Conformity

Name of Mfg:	Transitions Networks 6427 City West Parkway, Minneapolis MN 55344 U.S.A.
Model:	SDSFE31xx-100 Industrial Device Server
Part Numbers:	SDSFE3111-100, SDSFE3113-100, SDSFE3114-100, SDSFE3115-100, SDSFE3117-100
Regulations:	EMC Directive 89/336/EEC
Purpose:	To declare that the SDSFE31xx-100 Industrial Device Servers to which this declaration refers is in conformance with the following standards: CISPR22:1993; EN55022:1994+A1:1995+A2:1997 Class A; FCC Part 15 Subpart B; UL1950; 21 CFR Subpart J

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

Steven Anderson, Vice President of Engineering — September, 2006 (Date)

Warranty

Limited lifetime warranty

Effective for products shipped May 1, 1999 and After. Every Transition Networks' labeled product purchased after May 1, 1999 will be free from defects in material and workmanship for its lifetime. This warranty covers the original user only and is not transferable.

What the warranty does not cover

This warranty does not cover damage from accident, acts of God, neglect, contamination, misuse or abnormal conditions of operation or handling, including over-voltage failures caused by use outside the product's specified rating, or normal wear and tear of mechanical components. If the user is unsure of the proper means of installing or using the equipment, contact Transition Networks' free technical support services.

Establishing original ownership

To establish original ownership and provide date of purchase, please complete and return the registration card accompanying the product or register the product on-line on our product registration page.

Transition Networks will at its option:

- Repair the defective product to functional specification at no charge
- Replace the product with an equivalent functional product
- Refund the purchase price of a defective product

Who to contact for returns

To return a defective product for warranty coverage, contact Transition Networks' technical support department for a return authorization number (RAN). Transition's technical support department can be reached through any of the following means:

Technical Support is available 24 hours a day:

- Tel: 800-260-1312 x 200 or 952-941-7600 x 200
- Fax: 952-941-2322
- Email: techsupport@transition.com
- Live web chat: Transition Now
- Voicemail: 800-260-1312 x 579 or 952-941-7600 x 579
- All messages will be answered within one hour

Continued on next page

Warranty, continued

How and where to send the returns	Send the defective product postage and insurance prepaid to the following address: CSI Material Management Center c/o Transition Networks 6103 Blue Circle Drive Minnetonka, MN 55343 U.S.A. Attn: RETURNS DEPT: Credit Return Authorization (CRA)# or Return Material Authorization (RMA) # _____ Failure to protect the product during shipping may void this warranty. The return authorization number must be written on the outside of the carton to ensure its acceptance. We cannot accept delivery of any equipment sent to us without a CRA or RMA number.
Customer pays non-compliant return costs	The customer must pay the non-compliant product(s) return transportation cost to Transition Networks for evaluation of said product(s) for repair or replacement. Transition Networks will pay for shipping the repaired or replaced in-warranty product(s) back to the customer *(any and all customs charges, tariffs, or/and taxes are the customer's responsibility)*.
Non-warranty repair costs	Before making any non-warranty repair, Transition Networks requires a $200 charge, plus actual shipping costs to and from the customer. If the repair is greater than $200, an estimate is issued to the customer for authorization of repair. If no authorization is obtained, or the product is deemed not repairable, Transition Networks will retain the $200 service charge and return the product to the customer not repaired.
Repaired non-warranty products	Non-warranted products repaired by Transition Networks for a fee will carry a 180-day limited warranty. All warranty claims are subject to the restrictions and conventions set forth by this document. Transition Networks reserves the right to charge for all testing and shipping incurred, if after testing, a return is classified as "No Problem Found."
This warranty is your only remedy	This warranty is your only remedy. No other warranties, such as fitness for a particular purpose, are expressed or implied. Transition Networks is not liable for any special, indirect, incidental or consequential damages or losses, including loss of data, arising from any cause or theory. Authorized resellers are not authorized to extend any different warranty on transition networks' behalf.

Compliance information

Compliances

CISPR22/EN5022 Class A + EN55024; EN60950 Class A; FCC Class A; CE Mark

FCC Regulations

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at the user's own expense.

Canadian Regulations

This digital apparatus does not exceed the Class A limits for radio noise for digital apparatus set out on the radio interference regulations of the Canadian Department of Communications. Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

European Regulations

⚠ CUATION:

This is a Class A product. In a domestic environment, this product could cause radio interference in which case the user may be required to take adequate corrective measures.

Achtung !

Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten. In diesem Fäll ist der Benutzer für Gegenmaßnahmen verantwortlich.

Attention !

Ceci est un produit de Classe A. Dans un environment domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilsateur de prende les measures spécifiques appropriées.

Continued on next page

Compliance information, continued

European Regulations, *(continued)*



In accordance with European Union Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003, Transition Networks will accept post usage returns of this product for proper disposal. The contact information for this activity can be found in the 'Contact Us' portion of this document.



CAUTION: RJ connectors are NOT INTENDED FOR CONNECTION TO THE PUBLIC TELEPHONE NETWORK. Failure to observe this caution could result in damage to the public telephone network.

Der Anschluss dieses Gerätes an ein öffentlickes Telekommunikationsnetz in den EG-Mitgliedstaaten verstösst gegen die jeweligen einzelstaatlichen Gesetze zur Anwendung der Richtlinie 91/263/EWG zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über Telekommunikationsendeinrichtungen einschliesslich der gegenseitigen Anerkennung ihrer Konformität.

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Appendix A:
Technical Specification

SDSFES31xx-100 specifications, notices, and warnings

Parameter	Description
Standards	IEEE 802.3 *(100BASE-FX/ Fast Ethernet)* EIA/TIA RS-232 EIA/TIA-574
Regulatory Compliance for Emission	FCC Part 15 of Class A & CE approved
Ports	1x fiber single mode/multi-mode 1x 9-pin serial connector; D-sub, male
Max Distance	Fiber: up to 120,000 meters *(74.5 miles)* Serial: up to 15 meters *(50 ft.)*
Max Data Rate	Fiber: 100 Mbs Serial: 115.2 Kbps *(asynchronous)*
Signals	TxD, RxD, CTS, RTS, DTR, DSR, RI, DCD, GND
Safety Compliance	CISPR22/EN5022 Class A + EN55024; EN60950 Class A; FCC Class A and CE Mark
Power Consumption	3.4 watts
Ingress Protection	IP30
MTBF	123,778
Power Source	External, 9 to 48VDC @ 1A
Size *(width x depth x height)*	2 x 3.9 x 4.7 in *(50 x 100 x120mm)*
Weight	0.90 kg *(2 lbs)*
Operating Temperature	0 to 70ºC *(32 to 158ºF)*
Storage Temperature	-20 to 80º C *(-4 to 176ºF)*
Operating Humidity	5% to 90% *(non-condensing), altitude 0-10,000 ft*

Continued on next page

SDSFES31xx-100 specifications, notices, and warnings, continued

Notices

- The information in this user's guide is subject to change. For the most up-to-date information on the SDSFE31XX-100 Industrial Device Server, the user's guide on-line at: www.transition.com**.**
- Product is certified by the manufacturer to comply with DHHS Rule 21/CFR, Subchapter J applicable at the date of manufacture.
- IMPORTANT Copper based media ports: e.g., Twisted Pair (TP) Ethernet, USB, RS-232, RS422, RS485, DS1, DS3, Video Coax, etc., are intended to be connected to intra-building *(inside plant)* link segments that are not subject to lightening transients or power faults. Copper based media ports: e.g., Twisted Pair (TP) Ethernet, USB, RS-232, RS-422, RS-485, DS1, DS3, Video Coax, etc., are NOT to be connected to inter-building *(outside plant)* link segments that are subject to lightening transients or power faults. Failure to observe this caution could result in damage to equipment.

Warnings

WARNING: Visible and invisible laser radiation when open: Do not stare into the beam or view the beam directly with optical instruments. Failure to observe this warning could result in an eye injury or blindness.

WARNING: Use of controls, adjustments or the performance of procedures other than those specified herein may result in hazardous radiation exposure.

Index

Alarm
fault indications 16
Cabling
DB-9 cable types 18
DB-9 to serial port 18
fiber 17
Caution & Warnings
definitions viii
COM Port
1 and 2 52
configuration 52, 53, 54, 55
configuration wizard 55
control panel 51
creating virtual 52
if the wazard fails configuring 55
monitor 56
number of 52
selecting 52
usage 44
Configuration
COM port wizard 55
expanded software tree 25
how to backup 36, 37
IP address 35
IP trapes 39
SNMP communities 38
system backup 36
web access 23
Connection
idle time 28
RS-232 status 30
Contact Us 64
DB-9
crossover/straight thru cable 18
serial cable pinouts 60
Device Server
configuration 23
configured as DTE 60
dip switches 19
features 2
grounding 11
models 3
modes
converter (CR) and server (DS) *28, 29*
mounting to DIN rail 10
number of ports managed 2
operating voltage range 2, 71
terminal block 12
terminal block plug
alarm wiring *15*
power wiring *13*
wiring recommendations 11
DIN Rail
clip 9
device server mounting 10
DIP Switches 19
Fiber
cable connection 17
cable physical characteristics 61
cable specifications 61
optic specifications 61
Firmware
download 32
HTTP upgrade 32, 33, 34
TFTP server upgrade 34, 35
version 26
Firmware Version 26
Grounding
device server 11
GUI
hardware/firmware versions 26
main menu 24
master info submenu 26
RS-232 connection status display
item descriptions *30*
RS-232 transfer config display 27
serial port config submenu 28, 29
software tree 25
system info submenu 26
user name/password display 31
Hardware Version 26
Installation
DB-9 cable 18
Device Server 8
device server to DIN rail 9
DIN rail 9
fiber cables 17
redirector software 46
what to consider 8
where to install? 8
IP Traps
how to configure 40
manager 39
parameters and descriptions 39
LEDs
where located and descriptions 22
Loging In
web access 23
Operation
configuration software 25
LEDs
where located and descriptions *22*
serial IP redirector software 44
web access configuration 23

Packet Mode
input and timeout values 29
Parts/Functions 4, 5
Power
how to wire 13
primary/redundant 12
terminal block 12
terminal block location 12
terminal-block plug wiring 13
Redirector Software
config wizard 44
control panel 51
creating COM ports 51, 52
how to upgrade 50
importance notice 50
installation 46, 47, 48, 49
network requirements 45
operating environment 44
pre-installation steps 45
requirements 45
supported platforms 45
Regulations
Canadian 68
European 68, 69
FCC requlations 68
Relay
how to wire 15
Restore/Reset 41
RS-232
cable connection 18
cable pinouts 60
port connection status 30
specification 60
transfer configuration 27
what is 60
Serial Tunneling 29
SNMP Communities
two community strings get and set 38
Software
configuration 25
serial IP redirector 44
System
reset 41
restore 41
Technical Specifications 71
Terminal Block
alarm relay 15
layout 12
Terminal-Block Plug
alarm wiring 15
power wiring 13
Troobleshooting 58
User Name/Password
how to change 31
Warnings ix
Warranty 67
coverage 66
who to contact? 66
Web Access
configuration 23